

ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 13, NO. 4



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ARIZONA MEDICINE

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Original ARTICLES

PROBLEMS IN BILIARY TRACT SURGERY

An Analysis Of 31 Difficult Cases

Walter M. Kearns, Jr., M.S., M.D.
Canoga Park, California

THIS report summarizes the biliary tract surgery performed at the United States Indian Service Hospital in Phoenix, Arizona, in a 12 month period from July 1953 to August 1954. The series is of interest to surgeons because it consists almost entirely of difficult problems.

The patients are 31 Arizona Indians whose advanced disease merited a referral to the Phoenix Medical Center from the Papago, Pima, Maricopa, Colorado River, and Apache Indian reservations. They represent only a fraction of the known victims of gallbladder disease among a group of people with an inordinately high incidence of biliary tract disease.

There were 28 patients with benign calculous disease, two with carcinoma involving the extra hepatic biliary tract, and one with an external biliary fistula resulting from a previous operation. There were two hospital deaths (6.5%). Of the 28 with benign calculous disease, 17 (60%) were jaundiced at the time of operation, and 22 (78.9%) had exploration of the common bile duct. Table I. lists the operative procedures performed. The pathologic highlights of the series may be summarized as follows:

I. Findings at Operation

A. Common Bile Duct Stones

Thirteen of the 17 jaundiced patients were found to have stones in the common hepatic or common bile ducts. Three of the 11 non-jaundiced patients had valid indications for exploration of the common bile duct, and of these three one was found to have calculi within the duct. It is felt that cholangitis accounted for the

negative common duct explorations in the jaundiced group. One deeply jaundiced patient had abrupt cessation of pain and temperature two days before operation, indicating probable passage of an obstructing common duct stone. This patient had a negative common duct exploration.

B. Rupture of Gallbladder and Internal Biliary Fistula

One patient had a very recent fistula between the gallbladder and the common hepatic duct, and one had an old fistula between the gallbladder and the common bile duct. Both fistulae presumably originated with acute cholecystitis and a rupture of the gallbladder. The patient with the recent fistula developed obstructive jaundice when a large gallbladder stone entered the common bile duct through the fistulous tract. Another patient had a recent rupture of the gallbladder with abscess formation resulting from biliary tract obstruction due to pancreatic tumor.

C. Adhesion of Gallbladder to Common Hepatic Duct and Common Bile Duct.

This dangerous sequel to cholecystitis was seen sufficiently often to merit emphasis. In at least 5 patients there was dense fibrous post-inflammatory adherence of the gallbladder to the common hepatic duct or common bile duct. This pathologic event facilitates inadvertent excision of a portion of the main bile duct during removal of the gallbladder. Por-

tions of the wall of the gallbladder in some instances are more safely left in situ.

One patient, described below (E), apparently had inadvertent excision of a large part of the common hepatic duct along with adherent gallbladder at her first operation.

D. *Pancreatitis.*

Diffuse interstitial pancreatitis was diagnosed preoperatively on three patients. Later operation confirmed the clinical findings. One patient, a woman 67 years old, developed severe abdominal pain and shock at the White River Indian Hospital. The following day it was noted that she passed per rectum a laminated faceted biliary calculus 1.5 cm. in diameter. She improved and later operation showed gallbladder stones and a normal common duct in addition to a large indurated pancreas. Presumably common duct obstruction due to calculus played an important role in the pathogenesis of her pancreatitis.

Both of the other two patients with pancreatitis had gallstones; one had stones in the gallbladder and the common bile duct, and one had stones in the gallbladder only.

E. *External Biliary Fistula.*

A woman, 59 years old, drained bile from the wound since the day of a gallbladder operation at another hospital four months previously. Exploration revealed absence of the major portion of the common hepatic duct which had apparently been inadvertently excised. Approximately one-half centimeter of proximal hepatic duct was available for anastomosis. The distal common bile duct was deeply embedded in scar and was visualized only after retrograde catheterization through the ampulla of Vater. In a seven hour procedure, the hepatic duct was anastomosed end-to-side to the common bile duct. Since there was insufficient room in the common duct to insert a T-tube, a rubber catheter was threaded above the anastomosis for splinting purposes and was brought out of the ampulla of Vater and duodenum to outside the abdomen. She drained bile from the wound for one

week post-operatively, but then, as often happens in these cases, developed an internal biliary fistula to the duodenum. The catheter was removed from the anastomosis in two months. Ten months post-operative she was asymptomatic and had experienced no episodes of chills, fever, or jaundice.

II. Postoperative Complications

A. *Retained Common Duct Stones.*

Two patients (7%) demonstrated x-ray lucencies in the common duct on their postoperative cholangiograms. One of these patients a 32-year-old woman, was found to have a common duct filled with stones, gravel, and muddy bile at her first operation. Her tenth day postoperative cholangiogram was negative, but after two months a repeat cholangiogram showed radiolucencies in the terminal duct. For three weeks she received daily instillations of ether and alcohol without success. Re-exploration of the common duct was performed and four small stones removed. Her tenth day cholangiograms this time again showed radiolucencies in the common duct. The duct was washed for three days with hydrogen peroxide solution after which cholangiograms were negative. It is assumed that blood clots accounted for the suspicious x-ray findings and were washed out with the hydrogen peroxide irrigations.

Another woman, 24 years old, showed postoperative radiolucencies on the tenth postoperative day. This patient experienced pain when her T-tube was clamped off and it was assumed she had residual stones in the common duct. She was allowed to go home for two weeks, after which repeat cholangiograms were negative. X-rays were again negative after two and three months. Apparently the stones or blood clots finally passed through the ampulla of Vater.

B. *Postoperative Deaths.*

One death occurred in an 80-year-old, deeply jaundiced and cachectic man who was found to have carcinoma of the common bile duct with extensive liver metastases. He died of atelectasis and pneumonia on the second postoperative day.

The other death occurred in a 39-year-

old woman who went into irreversible shock two hours after operation and died seven hours after operation in spite of treatment with blood, transfusion, levo-phed, and adrenal cortical extract. Autopsy disclosed approximately 900 cc. of blood in the peritoneal cavity which had escaped from the gallbladder bed in the liver. This patient entered the hospital with marked jaundice and a prothrombin time of 24 seconds (control 14 sec.). She was prepared for three days with vitamin K, nutritional supplements and antibiotics. Cholecystectomy and choledocholithotomy were performed. Because of advanced acute and chronic inflammatory changes in the gallbladder bed, the liver parenchyma was focally lacerated in removing the gallbladder. Postoperatively, no blood at all drained from the stab wound, which complicated accurate diagnosis and treatment. It is probable that hepatic insufficiency resulting from acute biliary obstruction facilitated the development of irreversible shock in this patient.

C. Miscellaneous Complications.

The following major postoperative complications in this series emphasize other hazards which may accompany surgical procedures for advanced biliary tract disease:

1. Atelectasis and pneumonia — three patients (10%).

2. Pancreatic fistula — one patient (3%). This patient at operation was found to have gallbladder stones and a recently inflamed pancreas. Cholecystectomy was performed, but common duct drainage was not instituted because of anesthetic difficulties. The pancreatic fistula closed spontaneously in six weeks.

3. Hemorrhage from the wound — one patient (3%). A woman, 24 years old, entered with marked jaundice and was found at operation to have common duct obstruction due to calculi. Profuse postoperative wound hemorrhage stopped spontaneously within twelve hours, but 2.5 liters of whole blood were required to control shock.

4. Subhepatic abscess — one patient

(3%). This complication followed re-operation for retained common duct stones in a woman 35 years old. The abscess drained spontaneously through the operative wound.

5. Brachial plexus injury — one patient (3%). Presumably this complication resulted from trauma to the brachial plexus due to extrinsic pressure or arm positioning while on the operating table. It occurred in a 17-year-old girl who had calculi in the gallbladder and common bile ducts, and a recent history of acute pancreatitis. There were pain, tenderness, swelling, and weakness of the hand and forearm. The disability gradually improved over a twelve-month period.

SUMMARY

A review of 31 consecutive operations for biliary tract disease performed at the Phoenix Medical Center, B.I.A., in Phoenix, Arizona, is given. The series consists almost entirely of cases of advanced biliary tract disease. Pathologic highlights such as common duct stones, rupture of gallbladder, adherence of gallbladder to bile ducts, pancreatitis, and postoperative external biliary fistula are discussed. Postoperative complications and hospital deaths are described. The common bile duct was explored in 79% of the cases of benign calculous disease. There was a hospital mortality rate of 6%.

TABLE I.

Operative Procedures*

I. Benign disease — 29 patients, 31 operations

Operation	Jaundice	No Jaundice
Cholecystectomy	17	11
Cholecystostomy	1	1
Choledocholithotomy	14	1
Choledochostomy	19	3
Choledochotomy		2
Choledochal Anastomosis		1

II. Malignant disease — 2 patients, 2 operations

Operation	Jaundice	No Jaundice
Cholecystostomy	2	

*The operations were performed by Dr. W. M. Keurns, Jr. (formerly Sr. Asst. Surgeon, U. S. Public Health Service) and by Dr. H. G. Williams, Phoenix, Arizona.

THE TREATMENT AND CARE OF THE LONG-LIVED PATIENT

James J. Waring, M.D., M.A.C.P.*
Denver, Colorado

SOME 30 years ago, in some fear and trembling I went to call upon an elderly gentleman to tell him I wanted to marry his daughter and that she had consented. I then timidly suggested that he might have some questions to ask me! To my relief, should I say, he replied he had none! I then told him I had come West with pulmonary tuberculosis some 15 years previously. To which he replied, "That's nothing! I came to Colorado 60 years ago with tuberculosis." This Grand Old Man died just under age 99 from non-tuberculous causes! He came in his 30's and died in his 90's! Doubtless some credit should be given his forebears and his regular life. Each year for the last 25 years of his life on November 1 he left Denver headed for Coronado and on April 1 he headed back. A long-lived patient!

Let me repeat what I said Thursday. In 1924 the median age at death from tuberculosis was 33 years; in 1950 it was 50 years. Half of all deaths from tuberculosis in this country are in men 40 years and older. David Smith says the seed-bed of future crops of tuberculosis is in the tuberculosis man over 40 and the tuberculous woman over 60. I suggest that perhaps it would be better to say the seed-bed of future crops of tuberculosis is the unrecognized tuberculous man over 40 and the unrecognized tuberculous woman over 60.

Where do these elderly patients come from? In childhood we wanted to know where the babies came from.

1. Without doubt some like myself have made excellent recoveries, reached the scriptural age of three score years and ten and will probably die of non-tuberculosis causes, from coronary accidents or traffic accidents. Some of us have had our ups and downs, our minor recognized relapses or doubtless very ephemeral unrecognized relapses. Without doubt timely administration of chemotherapy will minimize the damage done by these relapses!

Some patients, after far advanced disease, have survived without surgery or chemotherapy with deformed thorax and distorted mediastinum. Their faces are florid, they are somewhat short of breath, they breathe conspicuously asym-

metrically, they still play a little golf, they wheeze and have a loose cough but you can examine sputum till the cows come home and you won't find a red bug in it. These chaps will not die of tuberculosis. Paradoxically, they will die because they have recovered from their tuberculosis with severely damaged lungs. They die eventually of right heart failure! These patients learned their limitations early and survived because they kept within them!

Last year I saw a man some 50 years of age. He came to Colorado 30 years ago for his health. Despite severe pulmonary tuberculosis and complicating genito-urinary tuberculosis, he made a nice recovery and has been at work and without symptoms for over 25 years. This chap is a very intelligent, cooperative fellow. Twice a year he sees his doctor for x-ray of his chest and culture of gastric washings. This man was sent to me in consultation by his family physician because he had turned up at long last with a positive culture. He had no significant symptoms, no cough, no complaint. Physical examination and x-ray showed honey-combed upper lobes. Except for some shrinkage of his upper lobes, I saw no important change in his x-rays over the past 15 years. Without giving the full story, I showed his most recent picture to a group of young doctors with request for recommendations. Half of them thought he ought to have bilateral upper lobectomy and the other half thought he ought to have bilateral thoracoplasty. What did he get? He got reassurance, he got continued close observation, he got chemotherapy on an ambulatory basis, he got permission to continue at work, he got admonition as to care of cough and sputum if any at any time at home and abroad. I am glad to say he has since remained well and subsequent cultures have been negative.

2. Let us turn to another group of these older patients. I prefer to the "good chronies." These patients offer a more serious public health problem because unlike the former patients who shed only a rare tubercle bacillus, these have almost constantly a positive sputum. They are a menace at home and away from home. They are in constant danger of hemorrhage and more or less severe febrile episodes and dreaded

*Presented before the California Tuberculosis & Health Association meeting at Los Angeles, Calif., March 19, 1955.

extra-thoracic complications. Dr. Edward L. Trudeau was such a patient. Will chemotherapy cure these patients? If not will it convert a communicable disease into a non-communicable disease? In other words, will the patient continue to spit tubercle bacilli that are pathogenic or non-pathogenic for human beings? A wisely planned and skillfully executed campaign of chemotherapy, bed rest and surgery may reduce the personal risk and the public health menace of these patients.

3. Then there is the elderly person who comes down with active pulmonary tuberculosis apparently but perhaps not really for the first time. Is this the lighting up of an infection acquired many years previously, say in childhood or more recently? Is it an exogenous reinfection? If his tuberculin test has been known to be positive for years these are probabilities. If his tuberculin test has recently converted from negative to positive, then the issues are clean cut. Where did he get it? Study all his contacts at home and abroad. Has he already infected members of his family? All should be tuberculin tested and preferably all x-rayed, certainly all positive reactors.

Something more needs to be said about endogenous exacerbation and exogenous reinfection! I hope I made it clear that although a significant amount of clinically active tuberculosis appears within a year or two after conversion of the tuberculin test, active disease can appear anytime after infection has taken place. A long latent period is more common than a short one! We just have to match the Bug's patience and persistence with eternal vigilance!

By exogenous reinfection, we mean a person who has had active disease and perhaps successfully recovered, but later, from contact with another open case gets a fresh or new infection. Pathologists have gathered adequate evidence that this does occur. How often is more difficult to answer! A few interesting cases are recorded where, without the melancholy assistance of the post mortem examiner, we can be sure that reinfection did take place. For example a number of cases are on record with infection and reinfection due on the one hand to the bovine and on the other to the human bacilli. These organisms, as you know, can be reliably distinguished from each other. The BCG organism is a bovine bacillus. Vaccination with it gives only a measure of acquired resistance. Vac-

inated persons have later developed active tuberculosis from a human bacillus! More recently Dr. Roger Mitchell told me of three patients formerly treated without chemotherapy at Trudeau with recovery and later relapse. The tubercle bacillus now appearing in the sputum of these cases was streptomycin resistant. The significance of this is simply that streptomycin resistant organisms are extremely rarely ever found in patients not treated with this drug. One of the patients was a doctor! The deduction is obvious: The doctor recovered from his first infection, evidently got a reinfection with a streptomycin resistant organism from one of his patients who had had chemotherapy. This again means that the immunity acquired by the first engagement with the tubercle bacillus was only a relative affair and could be overcome by circumstances favorable to a new infection.

4. Then, we have the battle-torn Respiratory Cripple! He would have been dead long since but for our good colleagues, the thoracic surgeons! A bit of rib here and a bit of lung there! One of the ablest of the British surgeons calls it Demolition Squad work! "The lungs," he says, "have been shot to pieces! We surgeons come in as the Demolition Squad to tidy up! To salvage what we can of life and able-bodiedness." As long as we have to contend with this communicable disease, tuberculosis, we will have patients who can be saved by the surgeon after more or less formidable surgical procedures plus chemotherapy. With diminishing prevalence of the disease and with earlier diagnosis and earlier and improved chemotherapy, the need for radical surgery will diminish!

In more precise terms, something now needs to be said about the management of the elderly man and the elderly woman with active pulmonary tuberculosis. The man between 40 and 50 doubtless will have important business responsibilities. He will want to defer doing the right thing. He is used to giving orders and not to taking them. He will resent giving up his golf! He may be proud and a bit stiff-necked and won't like it when you insist that all his office force should have tuberculin tests and x-rays. His wife, his children, his parents, his cook, his maid, his chauffeur, his whole "blooming" household must be checked.

This reminds me that some years ago when my two daughters were youngsters, we had to get a new nurse maid. I had always warned

my wife to inquire carefully of employment agencies and employees themselves about state of health especially about lung trouble. On this particular occasion the very first day we had this new maid, I interrogated her myself about her health. Not satisfied with either her replies or her appearance, I insisted upon examining her chest. Very reluctantly she consented and I found she had far advanced tuberculosis!

What about the woman past 60 found with a diagnosis of active pulmonary tuberculosis. I think she may be more cooperative about keeping quiet. If well-to-do, she could be cared for in her own home and help secured to relieve her of household responsibilities. If such help is not possible, she should go to a sanatorium.

Streptomycin must be given to these elderly patients with caution. Careful appraisal of renal function is wise. Damage to the eighth nerve, whether to the vestibular or auditory branches is serious at any age but uncertain gate and unsteady footing is a hazard anyhow of advanced ages and should not be aggravated, if avoidable. My inclination would be to use INH and PAS! It is quite possible some of these patients will need chemotherapy indefinitely.

Prolonged rest in bed is not desirable for the elderly. They lose strength rapidly and after getting up recover strength slowly. This is bad for their morale! Fortunately today rigid bed rest does not seem to be as important as in pre-chemotherapy days.

As to surgery, many of these "long-lived" patients had surgery in younger days. At any age, but particularly in the patient past middle age, arrest of disease with preservation of every possible bit of pulmonary function is important. Some of these patients will be much more

comfortable at sea-level, say somewhere in California than at Denver's altitude. This comment applies not only to the patient who has had radical surgery but to the patient who has made a nice recovery without surgery from far-advanced disease and is left with much fibrosis, distorted mediastinum and possibly pleural symphysis.

Now, I realize that much of what I have said is applicable to the long-lived or elderly patient on the private patient status. It is entirely possible that some part if not all of some of our tuberculosis sanatoria may be converted so to speak into "old soldiers homes," the inmates being the more or less indigent "tee-bee" battle scarred veterans, some with unhealed wounds made by disease and not bullets or scalpels, some respiratory cripples constantly under suspicion of shedding bacilli from time to time, other, to mix metaphors, where wounds are only "last years bird nests" from which the tubercle birds have long since flown. The institutional problem of taking care of these elderly, some perhaps senile, persons with careless habits of hygiene may be very formidable.

In summary, I have tried to point out some of the problems of taking care of the long-lived patient. I have indicated that this person cannot be readily cataloged. With the increase in elderly persons in the population and the shift in tuberculosis deaths to advanced ages, we must be constantly alert to find these patients. Finally, as long as we have any tuberculosis we will have Demolition Squad Work — salvage of the far-advanced case, but by all possible means we must continue to attack this problem of far-advanced tuberculosis by search for the early case and hope that prompt treatment with chemotherapy will prevent advanced disease.



COCCIDIOIDOMYCOSIS LOCALIZED TO THE THORACIC SPINAL CORD AND BRAIN, WITH A PLEA FOR EARLY DIAGNOSIS

M. Leonard Gottlieb, M.D., F.A.C.P., F.C.C.P.,*

Whipple, Arizona

IN view of the increasing number of systemic fungus infections being recognized at the present time, and with the hope of elevating the "index of suspicion" of mycotic diseases in general, this case is being presented. It is possible that intensive antibiotic therapy given to so many of our population may enhance the pathogenicity of pre-existing fungi with the subsequent development of systemic fungus disease. It is the author's opinion that, after carefully reviewing the literature, certain diagnostic criteria may be suggested which will aid in the early diagnosis of this disease. There are important military considerations involved as well, because of the large number of military personnel in endemic areas.

Since Wernicke(1) and Posadas(2) described in 1892 the case of the Brazilian soldier affected with *Coccidioides immitis*, a voluminous current literature has developed on this subject. However, cases of coccidioides localized in the spinal cord are extremely rare, and an intensive search of the literature has disclosed very few reported cases. Rand(3) reported two cases simulating cord tumor. Dr. Charles E. Smith, in a personal communication, stated that he had known of only two cases of cord coccidioides involvement with no other demonstrable lesions. Rosow and Raney(4) published a case in which the coccidioidal granuloma extended from the cerebellum to the cauda equina with a complete spinal block, positive Queckenstedt, parietic type of colloidal gold curve, and a very yellow spinal fluid which coagulated in the test tube. At autopsy the kidneys and adrenals presented yellowish granulation tissue besides the collar-like mass about the cord. The significance of the "urine-like" spinal fluid and the yellowish color of the granulation tissue will be further re-emphasized and is probably very important diagnostically. It is now well established by Smith(5) that coccidioidomycosis is endemic in certain regions of the west and southwest. This fungus disease is caused by *Coccidioides immi-*

tis. Gifford and Dixon(6) have shown that *Coccidioides immitis* also caused an endemic form of this disease observed in the San Joaquin Valley of California, known as "Valley Fever," as well as producing the disseminated type, which we now consider to be a coccidioidal granuloma.

The parasitic phase of the organism appears microscopically as distinctively double refractile spherules containing endospores. The spherules rupture and produce the granulomatous lesions, which are characteristic of the disease. Infection takes place in the human by inhalation of the arthrospores into the pulmonary system. Outside the host, the parasites exist in the mycelial phase, which consists of arthrospores which are rectangular, ellipsoidal, or spherical in shape. Fiese(7) et al demonstrated mycelial forms of *C. immitis* in the sputum of four cases with coccidioidal cavities of the lung with the aid of the Hotchkiss-McManus stain or fountain pen ink. Emmons(8) has demonstrated that desert rodents are frequently a reservoir of infection. Some laboratory workers have become infected by inhalation of the arthrospores. According to Norman and Lawler(9) the disseminated form, or the granulomatous type, occurs in only about 1 to 400 cases. It is a peculiar fact that this dissemination occurs much more frequently in the Negro race, and the pulmonary type of coccidioidomycosis can resemble tuberculosis, torulosis, histoplasmosis, actinomycosis, pulmonary neoplasm, and bacterial disease of the lung. Forbus(10) states that the central nervous system involvement can masquerade as cord tumor, meningo-encephalitis, neoplasm of the brain, tuberculous meningitis, etc.

Carter(11) noted that mediastinal involvement is frequent in coccidioides, and is not common in blastomycosis. Smith(12) believes that a positive skin test to coccidioides can be interpreted as manifesting past or present infection with coccidioidomycosis; however, in the disseminated form, the skin test may not always be positive. Ordinarily a strength of 1-100 of

*From the Medical Service of the Veterans Administration Hospital, Little Rock, Arkansas. Chief of Medical Service, Veterans Administration Center, Whipple, Arizona.

coccidioidin is employed, but in patients who present manifestations of allergy (5% of the cases) such as erythema nodosa, or erythema indurata, it is safer to use greater dilutions of 1-1000 of coccidioidin to 1-10,000, the test being read in 24-48 hours. Emmons (13) has demonstrated that cross reactions may occur with histoplasmin and blastomycin as well, therefore indicating that the skin tests derived from fungi are not always specific. Another portal of entry of the coccidioides may be through abrasions of the skin as in Rosow and Raney's (4) case, which was through a lesion in the nares. In approximately 60% of the coccidioidomycosis the symptoms may be entirely absent in this originally infected stage. Smith (12) has stressed the fact that pulmonary lesions are not indicative of dissemination, but pulmonary cavitation always seems to be associated with resistance to dissemination, and the granulomatous type of this infection is rarely found associated with pulmonary cavitation, a very significant clinical fact. Pathological changes of the disseminated form are granulomatous in nature, and the mortality rate of this type is usually in the neighborhood of 50%. Rosen and Belber (14) published a case of coccidioidal meningitis, who lived for 4 years and 8 months, and then death ensued. Autopsy revealed a very striking similarity with the patient which is being presented in this paper. It is unfortunate that their patient did not have a definitive diagnosis until the 5th year of illness. This diagnostic shortcoming occurs only too frequently in hospital practice, for the index of suspicion regarding fungus disease is still much too low. In their patient, of the 12 spinal taps performed, the spinal fluid was xanthochromic in 9 instances, and the total spinal fluid protein on 2 occasions was 720 mgm. % and 10,090 mgm. %, indicating that the color of the spinal fluid is not due entirely to the level of spinal fluid protein, but is caused by some other factor hitherto undescribed and not recognized. I regard this to be of diagnostic importance in the spinal fluid of fungus infections, for this yellow color is quite characteristic of *Cryptococcus neoformans* as well as coccidioides. Our case also manifested a strongly paretic gold curve in all the spinal fluid examinations obtained by lumbar tap from below. Smith (15) stressed the importance of this finding as a diagnostic clue in coccidioides of the central nervous system. The paretic gold curve

was found in Rosow and Raney's (4) case as well. In the case of Rosen and Belber, (14) the highest spinal fluid protein was 10,090 mgm. %, and in our patient the highest spinal fluid protein was 12,000 mgm. %. Unfortunately the clinical impression in our patient was extremely suggestive of spinal cord tumor, and the first two spinal taps performed were not cultured. This diagnostic error has occurred many times in the past in various hospital centers. Our patient gave no definite history of pulmonary infec-

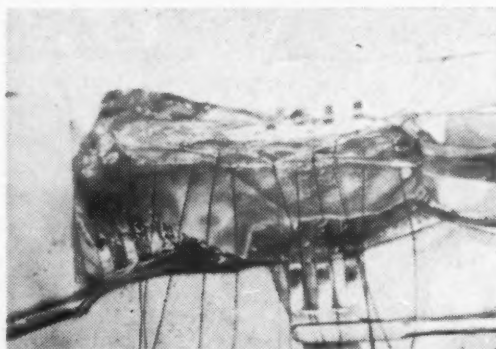


Fig. 1. Picture of exposed thoracic cord taken during surgery showing the marked thickening of the dura and arachnoid encircling the cord like a "cuff".

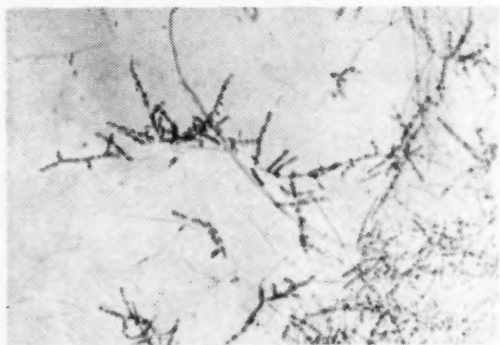


Fig. 2. Low power cotton blue preparation of *Coccidioides immitis* showing segmentation of hyphae into arthrospores.



Fig. 3. High power (600x) cotton blue preparation of *Coccidioides immitis* showing segmentation of hyphae into arthrospores.

tion, no history of erythema nodosum, and had no meningeal signs or symptoms until shortly before death. He did reside in Arizona and California for two years prior to admission to the Hospital.

Literally, a "United Nations" of therapeutic agents has been employed in the treatment of this disease, including copper, arsenic, gold, bismuth, acroflavin, guinacrine, gentian violet, alkalies emetine iodides and the like. X-ray therapy, avccines, sulfonamides, antibiotics such as penicillin, streptomycin and aureomycin have also been used, and in most instances have been found ineffective. Snapper(16) et al recently reported some benefit with 2-Hydroxystilbamidine in seven disseminated cases with five cases showing a favorable response. Jenkins and Postlewaite(17) reported four cases of coccidioidal meningitis from the Veterans Administration Hospital of McKinney, Texas, with three deaths and one apparent recovery. The patient who recovered received the fungicide actidione.* This antibiotic, actidione*, has very strong fungicidal effects, especially against torulosis in vitro. It is a diketone produced by an actinomycete originally found in an extract of streptomyces griseus. The author has seen considerable therapeutic benefit with this antibiotic, actidione*, in treating a case of cryptococcus neoformans meningitis. This case was reported by Wilson and Duryea(18). Another patient with coccidioides treated with actidione* had a three-year period of survival. This case was somewhat unusual in that dissemination of the coccidioidomycosis apparently followed cavitary pulmonary disease. Rand(3) published two cases of coccidioidal granuloma simulating tumor of the spinal cord. Both of his patients presented symptoms of pulmonary infection, the lesion first appeared in the lungs, giving rise to a picture simulating tuberculosis. The first case developed a coccidioidal granuloma at the level of the sixth dorsal vertebra, simulating spinal cord tumor. An extra-dural granuloma penetrating the thoracic cavity was removed at operation with apparent recovery. This patient resided in California. He developed a spastic gait in both lower extremities, paraplegia and showed considerable atrophy of both legs. The upper extremities were normal. He also had complete loss of all forms of sensation below the lesion. Abdominal and epigastric reflexes were absent. Biceps, triceps, radial and finger

jerkers were normal. Knee jerks were tremendously exaggerated with bilateral Babinski's and ankle clonus. Spinal fluid examination revealed clear fluid under low pressure. Queckenstedt test showed a partial block. The preoperative diagnosis was a tumor of the ninth dorsal cord segment. At operation an extra-dural, reddish-grey, soft, non-encapsulated tumor mass was found to be adherent to the dura, looking grossly like a sarcoma. The mass was removed piecemeal, and frozen section showed a coccidioidal granuloma. This mass extended around to the right side of the cord, going into the chest between the 5th and 6th ribs, where a pocket, approximately 5 x 5 cms. in diameter, filled with yellow caseous material was encountered and curetted out. Rand's first patient recovered completely from the paraplegia and left the hospital walking. The histologic report was typical of Coccidioides immitis. The tissue bore a remarkable resemblance to tuberculous granulation tissue. The organism was firm, with a heavy hyalin capsule and measured from 3 to 80 microns in diameter. In the tissue lesion the organisms multiplied by sporulation while in artificial culture it appeared as a mold producing an abundant mycelial growth. Rand's second patient showed a granuloma with the main lesions surrounding the cervical cord and small lesions scattered over and along the cerebellum and pons. This patient subsequently succumbed. He developed definite signs of meningeal irritation following a pulmonic onset with severe headaches, vomiting, and bilateral Babinski's were elicited. The spinal fluid was found to be straw-colored, under markedly increased pressure, 119 cells, most of which were polys. The colloidal gold curve was typically paretic, 5555555533. The second spinal fluid puncture of this patient revealed a slightly straw-colored fluid, with the same type of colloidal gold curve. This patient developed positive ankle clonus bilaterally, positive Babinski on the right, and negative on the left. He presented marked weakness of the right hand and sensory changes could not be demonstrated below the 5th cervical cord segment. Abdominal and epigastric reflexes were absent and deep reflexes had completely disappeared. He then manifested a complete flaccid quadriplegia with complete loss of all forms of sensation. At autopsy, the granuloma was found to be subdural and surrounded the cord, like a cuff. Microscopically, it showed a

typical picture of coccidioidal granuloma. There was noted a thick, tough, yellowish-grey exudate on the inferior surface, just posterior to the optic chiasma and over the pons. Exudate about the spinal cord was yellowish-grey, and tough. Spheroidal organisms of *Coccidioides immitis* were found. Many of these organisms contained endospores. The yellowish appearance of these lesions is again striking.

Forbus(10), describing granulomatous meningitis of the spinal cord, thinks that it may occur independently of the infection of the meninges. He discusses a patient who produced all the signs and symptoms of cord tumor, making necessary an exploratory laparotomy for relief of spinal cord pressure, and localized leptomeningitis was found associated with involvement of the dura, much as our patient evidenced. He further emphasized that coccidioidal meningitis may often be the only evidence of dissemination of that disease, without any localization of the primary focus of infection. It is of paramount importance to note that pathologically, the coccidioides produces a yellowish, granulomatous nodule, and it is very possible that the color of the spinal fluid is not due to the increase in the spinal fluid protein, but is actually due to a pigment produced by the coccidioides organism itself. Forbus(10) showed a beautiful colored picture of disseminated coccidioidal mycosis in the kidneys with yellowish, granulomatous nodules present in the cortex and medulla.

The case history is as follows: J. K., a 40 year old white male, WW II Veteran, was admitted to the Veterans Administration Hospital, Little Rock, Arkansas, complaining of weakness of the right lower extremity, duration about two months prior to admission. He had been working as a carpenter and painter for the past five years, the last eight months attending a watch repair school. About two months prior to admission he noted progressive weakness of the right lower extremity. This symptom was not associated with any pain in the hip joint or knee or ankle joint, and coughing, sneezing, or straining at stool did not aggravate this sensation of weakness. There was no associated headache, no history of venereal infection. The patient further stated he lost about 10 to 15 lbs. in the past six months. There was no history of any previous disease of the spinal cord or arthritis, no injury to the right lower extremity,

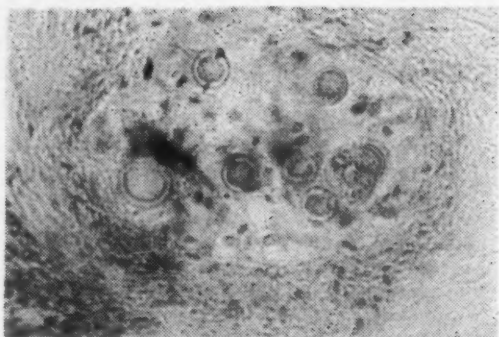


Fig. 4. Spherules of *Coccidioides immitis* in section from the dura taken at time of surgery. (475x)

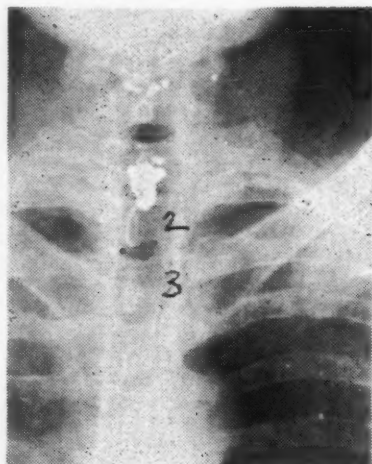


Fig. 5. Pantopaque cervical myelogram by cisternal route indicating complete irregular block at T-2.

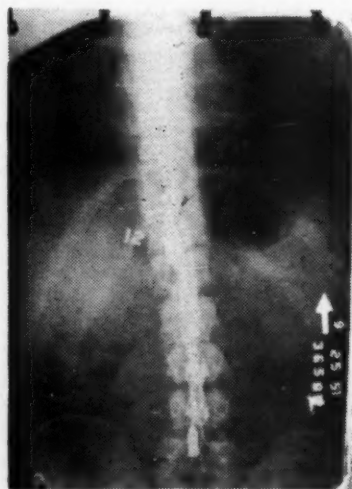


Fig. 6. Pantopaque lumbar myelogram showing complete irregular block at T-12.

no past history of any neurological disturbances. Prior to the onset of weakness of the right lower extremity, the patient believed that he had an upper respiratory infection which lasted about a week or ten days. The rest of the past history was not contributory, with the exception of the presence of bilateral renal calculi, which was demonstrated on X-ray in this hospital. He had a nephrotomy done on the right side with removal of kidney stones at the Veterans Administration Hospital in Fayetteville, Arkansas, one year prior to admission. Physical examination revealed the following pertinent facts: Temperature normal; pulse 100, regular. He did not appear acutely or chronically ill, endocrine status was normal, dental hygiene was poor, and bilateral cervical adenopathy was present, not painful. The heart and lungs revealed no abnormalities. The blood pressure was within normal limits — 110/60. There were no signs of right or left-sided heart failure. The liver and spleen could not be felt. Bilateral axillary adenopathy was noted. Neurological examination revealed the following findings: The patient seemed somewhat apprehensive, walked with a very wide base, and a positive Romberg was present. Cranial nerves were grossly negative. There was marked hyperreflexia in both lower extremities, bilateral exhaustible ankle clonus, and a bilateral Babinski. Abdominal reflexes were present, but diminished. Cremasterics were active. Reflexes in the upper extremities were hyperactive. No sensory disturbances were demonstrable at this time, and no localized tenderness over the spine. A coarse tremor was present in both upper extremities. Apparently there was no marked loss of strength although there was some suggestion of atrophy of the muscles of the right thigh and of both extremities below the knees. There was no evidence of any arthritic condition. Examination of the eyegrounds was normal. Laboratory data revealed the following: White count on admission was normal with a normal differential, 2 eosinophils were noted, red count 5,250,000, hemoglobin 15 gms., sedimentation rate 30. Urine analysis revealed 1 plus albumin and 20-30 white blood cells. During the early course of the disease the sedimentation rate remained persistently elevated, varying between 30 and 50, and subsequently approached normal values. The first spinal tap, four days after admission, revealed the pressure to be low, 8 cm. of water,

the fluid being grossly xanthochromic — it resembled urine, and a negative Queckenstedt was present. Examination of this spinal fluid showed a sugar of 30, globulin was positive, and an extremely high total protein of 5,000 mgm.%. There were only 15 cells, and they were probably red cells. Unfortunately no culture was made of this first spinal fluid; the gold curve was 4444444444. In view of the unusually high protein it was deemed advisable to repeat the spinal tap, considering the possibility of a cord tumor or multiple myeloma. The patient's blood serology was reported as negative. Another spinal tap was performed 14 days later, showed a very low pressure of 4 cm. of water, and after coughing and straining the pressure went up to only 10 cm. of water. Queckenstedt's test was positive for when pressure was exerted to both sides of the neck, the spinal fluid pressure did not increase, but it did increase when the patient coughed or strained, indicating a complete block in the cord. The same type of yellowish, urine-like, amber colored fluid was removed. One of the internes, who was observing this tap, thought that possibly the bladder had been penetrated, for the fluid looked exactly like urine. Ten c.c. of spinal fluid was removed and sent to the laboratory for study which showed 32 mgms. of sugar with a 12,000 mgm.% protein, 75 lymphocytes, 25 polys and the same type of paretic gold curve as was noted in the first tap. The cell count in the second tap was 33 red blood cells and 111 white blood cells. About two weeks following admission the patient developed some bladder incontinence, and a retention catheter was inserted. Myelogram revealed an obstruction in the neighborhood of T-12. A cervical myelogram was performed with the following findings: A marker at the 12th dorsal vertebral segment on the right side was noted. Following the injection of pantopaque there was a bizarre collection of pantopaque at the level of the 7th cervical and 1st and 2nd thoracic vertebral bodies, and a complete obstruction was demonstrated at this level, as well as at the level of T-12, when the dye was injected from below. The roentgenologist thought that we were dealing with a very diffuse process of the thoracic spine, possibly in the nature of an obliterating arachnoiditis rather than a spinal cord tumor. Three days prior to operation the patient first experienced pain in the upper back regions

radiating down both arms and a careful neurologic examination revealed the possibility of a sensory level at this time about T-2 to T-4.

A laminectomy was done, extending through thoracic 1 and down through thoracic 6. The neurosurgeon, Dr. Robert Watson, noted a diffuse, yellow, granular infiltration encircling the whole of the exposed surface of the spinal cord over the dorsal, as well as the lateral aspect of the cord. Biopsies were taken, and the patient had a very good postoperative course. It was further observed that the underlying cord beneath the granulation tissue appeared yellow, avascular, and somewhat necrotic. The pathological report was suggestive of cryptococcus neoformans or torulosis. Following operation the ankle clonus formerly observed disappeared as well as the Babinski. Both ankle jerks and knee jerks were still hyperactive, with absence of abdominal reflexes, and the rest of the neurological examination failed to reveal any other abnormalities. Eighteen days following the first operation, the patient developed a paraplegia with flaccid paralysis of both lower extremities. Several attempts to obtain spinal fluid during this period were unsuccessful, and it was postulated that the patient had developed a complete block, the paraplegia being due to involvement of the anterior and posterior spinal arteries with a transverse myelitis produced by the granulation tissue. A retention catheter was again inserted; the patient presented no other complaints, and the physical findings were those of a paraplegia, extending from below T-1, with complete loss of motor functions. There were no meningeal signs present during the entire period of hospitalization until prior to death. Decubitus ulcers developed. When the diagnosis of cryptococcosis was suggested by the pathologist, actidione[®] therapy was instituted, the patient receiving 40 mgm. intravenously daily for several weeks, as well as other supportive therapy. The decubitus ulcers were treated locally with bacitracin and ultra violet and seemed to be responding to this therapy. Urosepsis was controlled by streptomycin and other antibiotics. A cisternal puncture revealed clear spinal fluid, and was sent to the laboratory for evaluation. Total protein, cell count, culture, sugar, and chlorides were within normal limits. Colloidal gold curve was normal. Prior to this first cisternal tap the patient was seen by a consultant-neurologist, who observed

the following: The cranial nerves were still within normal limits, the upper extremities motor strength was normal, coordination was normal, no disturbance in tone, no visible atrophies or fibrillations were noted. The lower extremities presented a complete flaccid paralysis beginning with the lower abdominal muscles. The reflexes were hyperactive in both arms; they were present, but not as active as formerly in the lower extremities. Cremasterics were



Fig. 7. Culture of *Coccidioides immitis* on Sabouraud's glucose agar - seven days.

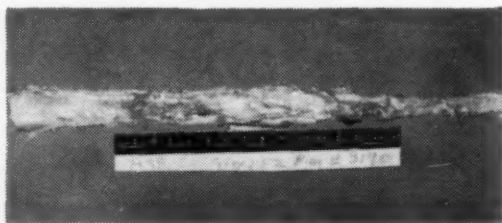


Fig. 8. Excised cord showing necrosis and marked thickening of leptomeninges.

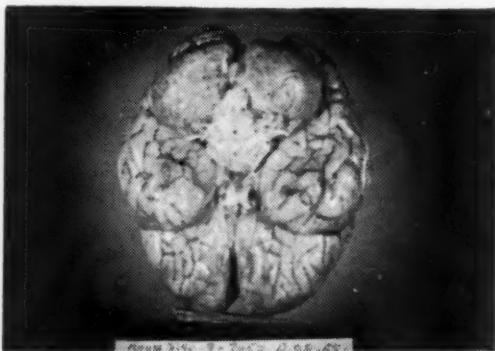


Fig. 9. Base of the brain presenting meningitis, thickened meninges and flattening of the gyri.

absent, although Babinski's persisted. No ankle clonus noted. It was impossible to elicit a mass reflex. Sensory examination revealed a level at T-2. The patient was incontinent as well. It was the neurologist's opinion that a transverse myelitis secondary to a chronic granulomatous masses produced by torula was present. He explained the change in the clinical picture in the past few weeks on the basis of occlusion of blood vessels supplying the spinal cord, with production of a transverse myelitis. The absence of the mass reflex suggested that the myelitis is not complete at the present time.

Typhoid vaccine was given, hoping that some therapeutic benefit would result from the fever, because it has been shown *in vitro* that fever will kill most of the torulae. The patient was placed in a Stryker frame because of his decubitus ulcers. A search of the literature revealed that hyaluronic acid was the substance in the capsule of the torula and hyaluronidase would possibly dissolve this substance(20), so when two cisternal taps were done subsequently, actidione* and two ampules of wydase* were injected intrathecally with no untoward effects, the theory being that if the capsule of the torula could be dissolved, the actidione* would have a more specific action. All of the spinal fluid which was removed by the cisternal route was within normal limits for protein, globulin, cell count and colloidal gold, and subsequent cultures were all negative. Entertaining the possibility that the cord could be decompressed, and the granulation tissue might also be stripped away, the patient was reoperated five months following the first surgery, and the same type of diffuse, yellow granulation infiltration throughout the whole of the exposed surface of the cord was noted. The dura was found to be about three times its normal thickness. Beneath the dura the arachnoid was markedly thickened with a whitish, yellowish, granular appearance. The thickened arachnoid varied from 1 to 3 mm. The cord appeared more necrotic and yellowed than on the previous operation. Biopsies of the dura and arachnoid and the spinal cord were taken for tissue examination and culture at this time. An attempt was made at decompression, but this was not successful, because of the nature of the granulation tissue. The dura was left open and covered with gel-foam. Wydase* and actidione* were applied locally. He received numerous blood transfu-

sions. The patient had an uneventful post-operative course. Prior to the second operation he had been receiving 1,000,000 units of penicillin daily for twelve days. The patient also was placed on an alkaline regime, taking 2 gms. of soda bicarbonate t.i.d. by mouth, as well as large doses of sodium citrate, and 3.7 gms. of soda bicarbonate intravenously on numerous occasions, for alkalinization had been found to be of some value in the treatment of torulosis, according to Mosberg and Arnold(19). B₁₂ and liver were given as well. The dose of typhoid vaccine was 25,000,000 units intravenously daily for three days and was then increased to 50,000,000 units intravenously daily for two days. An electroencephalogram was taken which revealed no abnormalities. Repeated fundus examinations were persistently negative, and meningeal signs failed to develop. Typhoid vaccine was subsequently stepped up to 100,000,000 units intravenously every other day for twelve days. He also received iodides by mouth. A pathological report of the specimens taken during the second operation revealed coccidioidomycoses. Cultures were positive, as well as organisms being present in the dura and arachnoid. The bacteriological evidence was indisputable that we were dealing with coccidioidomycosis rather than torulosis. Coccidioidin skin tests in strengths of 1:100 and histoplasmin 1:100, and tuberculin in first strength were all done, and were all reported negative. Repeated X-rays of the chest and of all the long bones have all been negative. A primary focus of coccidioidomycosis could not be demonstrated. The pathological study further disclosed numerous large oval organisms measuring 24 to 30 microns in diameter, the central portion of which contained small granular appearing material which was thought to be endospores. Giant cell formation was also present. The gross specimen taken at the time of the second operation showed a markedly thickened dura as well as arachnoid which was yellowish in color, and the specimen of the spinal cord was also yellowish-white in color, with plaques about 1 mm. in diameter. Cultures of the dura and arachnoid showed *Coccidioides immitis*. The culture of the spinal cord revealed no growth. X-ray studies of the entire spine, as well as upper and lower extremities, skull, and chest were all reported as within normal limits, with the exception of the laminectomy

of the spine from T-2 to T-7. Following the second operation the patient received 100 mgms. of actidione* twice a week intravenously in 500 c.c. of saline. The streptomycin was continued in combat the genito-urinary infection, oretone 5 mgms. t.i.d. as supportive therapy to prevent osteoporosis, and bacitracin was continued locally on the decubitus ulcers which practically disappeared. Blood transfusions were given.

Complement fixation studies for coccidioides were sent to the U. S. Public Health Service in Chamblee Georgia, and were reported as being positive 1:8. Another blood specimen was sent to Dr. Charles E. Smith at the School for Public Health, University of California, and it was reported as positive in dilutions up to 1:16. Slides were also reviewed, and the coccidioides spherules were confirmed.

In spite of supportive therapy, the clinical picture became progressively worse and he succumbed about one year after admission to the hospital.

The pertinent findings on autopsy were as follows: The dura was markedly thickened, especially at the base of the brain, and in an area near the foramen magnum the leptomeninges were 6 mm. and at the thinnest point 0.5 mm. The brain weighed 1350 grams and presented flattened gyri and thickened and distended leptomeninges and, near the upper end of the spinal cord, numerous areas of focal grayish-yellow necrosis were present. Multiple coronal sections through the cerebrum revealed 2 to 5 mm. thick cortex, markedly atrophied white matter, and extremely dilated lateral 3 & 4 ventricles. Continued transverse section through the pons, cerebellum, medulla and cord revealed congested veins and marked thickening of the leptomeninges on the inferior surface in the area surrounding the cord. The spinal cord was covered with extremely thickened meninges, so that its over all width was twice the normal. At the level of the previous surgical procedure the posterior surface of the meninges is very necrotic, and at one point the cord appears to have lost all but a thin .2 mm. layer on its anterior surface due to necrosis. 2 cm. above the upper end of the surgical site the gray-white thickening in the subarachnoidal space invaded the posterior $\frac{3}{4}$ of the cord leaving only 1.5 mm. layer of tissue which resembled spinal cord on its anterior surface. No spinal fluid could be seen. Careful pathological exam-

ination of the lungs failed to reveal any primary focus of *Coccidioides immitis*. The rest of the pathological examination was non-revealing with the exception of small, sand-like calculi in the right kidney.

SUMMARY

1. Because of the increasing incidence of systemic fungus diseases, the clinician must have a "mycotic index of suspicion" in diseases of the central nervous system, along with virus, bacterial, neoplastic, and degenerative diseases.

2. The urine-like, yellowish spinal fluid with its high protein, quick coagulability, positive Queckenstedt, and paretic colloidal gold curve suggest a diagnosis of coccidioidal or cryptococcal involvement of the central nervous system.

3. Pulmonary coccidioidal cavitation is seldom followed by the disseminated type of the disease in white patients.

4. The yellowish color of the granulation tissue of coccidioides has been stressed, and it is believed to be causally related to the xanthochromic spinal fluid.

5. A positive skin test with coccidioidin merely indicates past or present infection with coccidioides. The skin test may be negative in the disseminated form. Cross reactions may occur with histoplasmin and blastomycin. The complement fixation test on blood serum is a valuable aid to the diagnosis. A rising titer denotes grave prognosis.

6. A plea for early diagnosis is being made, for prompt decompression of the cord with removal of the coccidioidal "collar-like" granulation tissue can preserve its viability and prevent paraplegia or quadriplegia.

I wish to express my appreciation to the Department of Biochemistry, and the Medical Illustration Service of the Veterans Administration Hospital, Little Rock, Arkansas, and to the Department of Pathology, University of Arkansas Medical School, for their invaluable assistance in preparing the specimens and photographs presented in this paper.

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TONGUE TIE SPEECH

Robert N. Plummer, Ph.D.*

Phoenix, Arizona

TONGUE tie speech is an articulatory failure caused by restricted vertical mobility of the tongue tip. This restriction is imposed by a lingual fraenum whose superior attachment is too near the tongue tip. The inferior attachment often is at the juncture of the alveolar process and the inferior incisors, rather than well back near the base of the tongue.

Severe tongue tie is easily discovered by mere observation of the fraenum. Determination of whether the condition is severe enough to interfere with speech can be made by having the patient open the mouth quite wide and attempt to lift the tongue tip to the alveolar process, behind the superior incisors. If this can be done with or without the aid of a tongue blade, the tip has freedom enough for normal speech. Though not tongue-tied, the child often is so insensitive to the position of his tongue that he cannot follow oral instructions for lifting it to the desired point, but can do so with assistance.

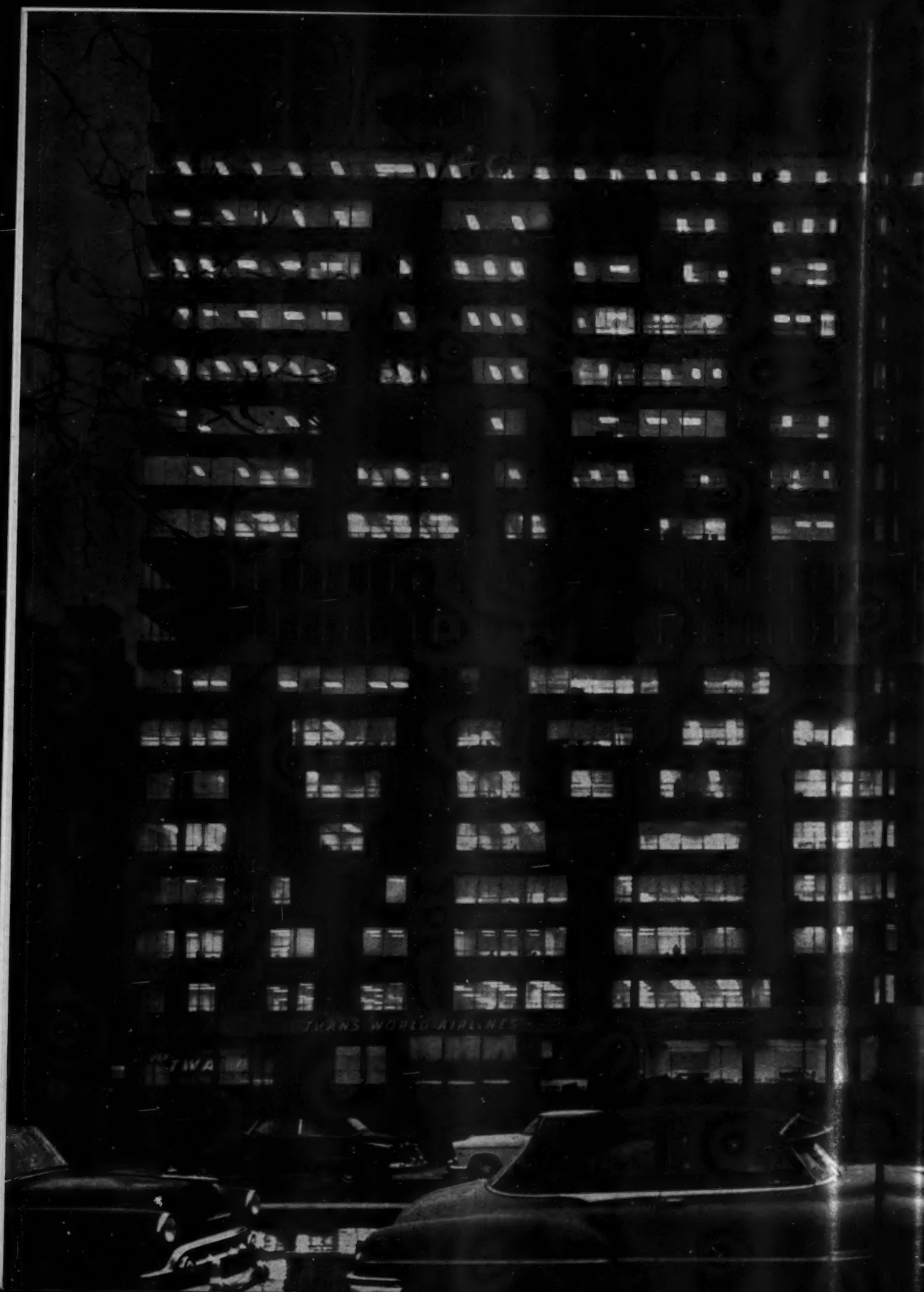
The condition of tongue tie severe enough to result in an articulatory defect is rare. In eighteen years I have seen approximately twelve such cases. We hear much about tongue tie speech, but we do so only because the term is used promiscuously. Many people label any speech disorder as "tongue-tie" because of ignorance or because the term has become a catch all for any speech failure.

*Speech Pathologist.

In severe cases of tongue tie, only the quality of speech is disturbed. The quantity is not disturbed, and complete speech failures cannot be accounted for by this condition. The defective speech sounds involved are the dental-alveolar sounds, or those requiring that the tongue tip be elevated to the alveolar process, and most usually to a point behind the superior incisors. These sounds are "r, l, s, z, th, t, d and n." In addition, the voice is often muffled because of a close jaw position. This position keeps the tongue relatively high and compensates for the inability to elevate it when one talks with the mouth as wide as normal.

The first step in correction of tongue tie speech is surgical removal of the restriction. If delayed until after speech is fully developed, surgery must be followed by speech therapy since the patient otherwise will continue to speak defectively purely upon the basis of habit. Prognosis is good, with the length of therapy dependent upon the age of the patient. If the condition persists into adulthood, the process of correction after surgery is quite difficult and prolonged.

While most cases of tongue tie are detected and corrected at birth, the condition occasionally is found in an adult. Despite the rarity of the condition, examination of the tongue should be routine in all cases of defective speech, with surgery and speech therapy when indicated.





ACHROMYCIN^{*}

Tetracycline Lederle

in the treatment of respiratory infections

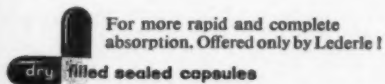
January and his associates¹ have written on the use of tetracycline (ACHROMYCIN) to treat 118 patients having various infections, most of them respiratory, including acute pharyngitis and tonsillitis, otitis media, sinusitis, acute and chronic bronchitis, asthmatic bronchitis, bronchiectasis, bronchial pneumonia, and lobar pneumonia. Response was judged good or satisfactory in more than 84% of the total cases.

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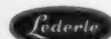
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¹January, H. L. et al: Clinical experience with tetracycline. *Antibiotics Annual* 1954-55, p. 625.



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PHOTO DATA: 4X5 VIEW CAMERA, F5.6, 1/25 SEC., EXISTING LIGHTING AT DUSK, ROYAL PAN FILM.

PHOENIX *Clinical* CLUB

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

MASSACHUSETTS GENERAL HOSPITAL PRESENTATION OF CASE NO. 39041

A THIRTY-TWO-YEAR-OLD former miner's helper, a paraplegic, was admitted to the hospital for rehabilitation.

About ten months before entry, while bending over shoveling coal at work, the patient was struck on the small of the back by a fall of rock. He did not lose consciousness but had an immediate sensation of numbness and paralysis of both legs. He was carried face up, being held under the legs and armpits, to the shaft elevator and taken to a hospital. During the period of hospitalization he was placed on constant catheter drainage, mineral oil and enemas as needed, and given passive exercises and massage of the extremities once a day. Five months later because of persistent pain in the back, a spinal operation was performed. Casts were never used. One month later the patient began to experience crampy pains in his legs at times. A sensation of pins and needles was present in both legs for three months, but normal sensation had never returned. About two months before admission the catheter was removed, and he was permitted to void spontaneously. He was sent home at that time. For a month before admission he had ankle edema and erythema. Two weeks before entry he had a one-day episode of "cold in the kidney" associated with steady left-sided pain, and on the next day he passed bloody urine. No further hematuria occurred, however.

The patient had always been in good health before the accident except for a bout of malaria in the Philippines seven years before admission.

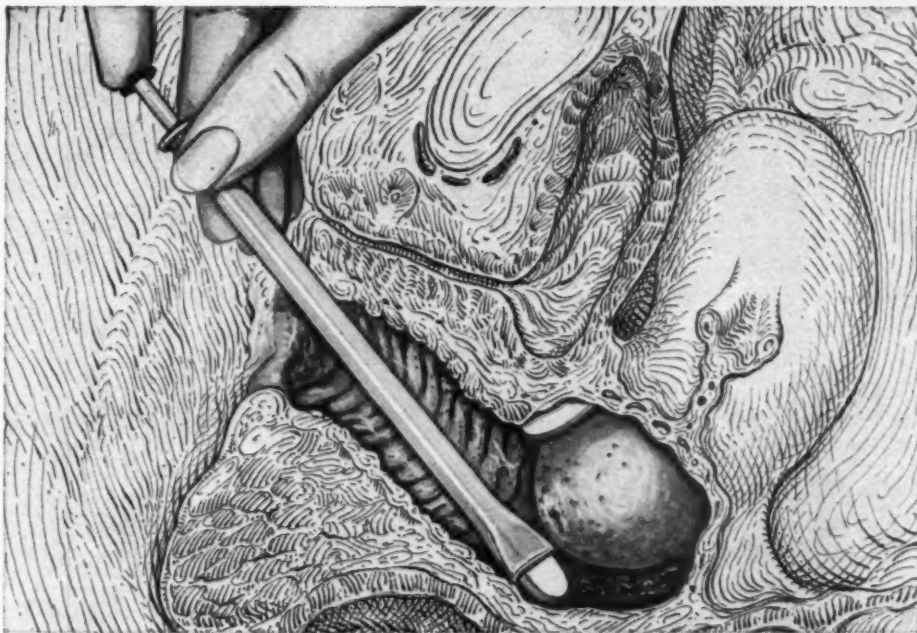
Physical examination revealed a well developed man in no distress. The heart, lungs and

abdomen were normal. There was a large decubitus ulcer over the sacral area and an operational scar at the lower dorsolumbar area in the midline of the back, with no local tenderness. The testicles were completely sensitive to squeezing. The lower limbs showed considerable atrophy and foot drop. The patient could flex the hips 20° but otherwise the legs showed a flaccid paralysis. There was complete anesthesia and analgesia from Poupart's ligament distally on the left and from about the mid thigh on the right. Both legs showed absent reflexes. There was increased sweating of the right foot and leg but no increased warmth.

The temperature, pulse, respirations and blood pressure were normal. The urine had a specific gravity of 1.010 and gave a xx test for albumin; the sediment contained 25 red cells and a few bacteria per high-power field and was loaded with white cells. Examination of the blood revealed a hemoglobin of 15.0 gm. per 100 cc. and a white-cell count of 14,100, with 69 per cent mature and 1 per cent young neutrophils, 1 per cent unclassified cells, 22 per cent lymphocytes, 4 per cent monocytes and 3 per cent eosinophils. The serum total protein was 7.25 gm., the albumin 4.81 gm., the globulin 2.44 gm., and the non-protein nitrogen 47 mg. per 100 cc. A roentgenogram of the chest was normal. X-ray study of the thoracic and lumbar spine showed a severe old compression fracture of the body of the first lumbar vertebra, with marked narrowing of the twelfth thoracic intervertebral-disk space; the body of the first lumbar vertebra was displaced very slightly anteriorly in relation to the twelfth thoracic vertebra. Considerable bony overgrowth had occurred about the fracture between the twelfth thoracic vertebra, and the first lumbar vertebrae. There was irregularity of the transverse processes of the first and second lumbar vertebrae that was probably due to the injury. There also appeared to have been an old laminectomy of the first and second lumbar vertebrae. Calculi were observed in the urinary bladder, but none in the ureters or kidneys.

Shortly after lunch on the second hospital day the patient reached back for the light switch with his left arm, after which he had a sudden

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onset of severe, steady, left subcostal pain not accentuated by respirations. He vomited once without relief and retched repeatedly thereafter. On being questioned at this time he admitted having four loose bowel movements and some mild, generalized crampy abdominal pain on the day of admission but said that the present pain was completely different. On examination the heart and lungs were normal. There was no dyspnea or cyanosis. Marked tenderness was present in the left subcostal region, and to a lesser extend in the midepigastrium. There were no masses or real spasm. There was no flank or costovertebral-angle tenderness, but slight pain on the left on jarring. Peristalsis was almost absent. The remainder of the abdomen was soft and nontender. The temperature, pulse, respirations and blood pressure were normal. Pain subsided a little after administration of atropine and was minimal after 100 mg. of Demerol had been given, being felt only when the patient turned from side to side. Three hours later pain and tenderness were still present, but the physical findings were unchanged.

The pain persisted throughout the night and at 9 o'clock on the following morning the patient was found to be short of breath and slightly cyanotic. He denied any increase or change in character of the pain, which apparently was not made worse by breathing. On examination he was alert, but the skin was cold, moist and pale, suggesting to one observer a state of impending circulatory collapse. The left side of the chest was hyperresonant, with absent breath sounds, and the heart and trachea were deviated to the right side. These findings had not been present the day before. There was left-upper-quadrant tenderness, with spasm and with no sign of peritoneal irritation. The temperature was 98° F., the pulse 130, and the respirations 30.

One and a quarter hours later, after an x-ray examination of the chest with a portable machine the patient died.

DR. PAUL B. JARRETT

Ten months prior to this young man's death, he was crushed by a rock fall which injured his cord and produced a paraplegia. The presence of hematuria, an apparent pyelitis, calculi in the urinary bladder and the urinary laboratory findings are usual in paraplegic cord injury, and I do not believe these findings are of significance in determining the cause of death. The

analgesia and anesthesia levels, as well as the extend of paralysis, indicates the level and severity of the cord lesion and here again I don't think this information contributes worthwhile clues as to the cause of death. The laboratory x-ray work with the exception of the last chest film, which report is not available, doesn't help either. The increased white count could well be explained on the basis of his chronic urinary tract infection.

This patient's death does not appear to be due to an infectious process with toxicity, rather it would appear that he died of cardio-respiratory embarrassment with dyspnea and cyanosis which was not present at the onset of pain but became progressively worse. The attack of pain followed reaching backward with the left arm. This pain was left sub-costal, not related to respiration and accompanied by nausea, vomiting and retching — without relief. There was tenderness in the left sub-costal region, no masses or spasm and nearly absent peristalsis. The significant findings were present the next day which were hyper-resonance of the left chest, absent breath sounds with deviation of the heart and mediastinal contents to the opposite side. The left upper quadrant tenderness persisted and shortly after an x-ray examination of the chest, the patient died in respiratory and circulatory failure.

We have then history of crushing injury ten months previously, history of secondary mild trauma (reaching backward) followed by subcostal pain and gastro-intestinal symptoms of vomiting and retching; all of which followed a meal; later on signs of collapse of the left lung with mediastinal shift and cardio-respiratory failure and death. What would fit all of these findings? A spontaneous pneumothorax would fit the hyper-resonance, absent breath sounds, and mediastinal shift; but — it wouldn't explain the sub-costal pain and vomiting and there is no history of symptoms of tuberculosis or emphysema findings, and the development of this pulmonary collapse was much slower than you find in even a tension pneumothorax.

It seems to me that the entity that would fit all of the picture is a rupture of the left diaphragm with evisceration of the stomach and possibly large bowel into the pleural cavity with subsequent gastrectosis and cardio-respiratory pressure and failure.

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References: 1. Bunim, J. J., et al.: J.A.M.A. 157:311, 1955. 2. Forsham, P. H., et al.: Paper presented at First Internat. Conf. on Prednisone and Prednisolone, New York, May 31-June 1, 1955. 3. Perlman, F. L., and Tolksdorf, S.: Scientific Exhibit presented at A.M.A. Annual Meet., Atlantic City, June 6-11, 1955.

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*brand of prednisolone

omy and Surgery of Hernia;" — "The symptoms of traumatic diaphragmatic hernia may make their appearance immediately after the accident or years may go by before any symptoms are noted." There have been a number of cases where a diagnosis of "partial pneumothorax" has been made following an accident and death has resulted from lack of a swallow of barium in these cases. Great care must be taken before aspirating a chest for supposed pneumothorax.

Zimmerman calls attention to the fact that secondary trauma following a severe injury may be very mild and yet produce rupture of the diaphragm. Carter and Ginseff report a case of a soldier who had a severe wound in the chest which was followed by no signs of symptoms of diaphragmatic hernia, but who developed symptoms while trying to carry a sack of flour a year later.

My diagnosis here is rupture of the left diaphragm with evisceration into the left pleural cavity, strangulation of the stomach, pressure on heart and pericardium with displacement of left lung and mediastinum with respiratory and circulatory embarrassment with death therefrom.

DIFFERENTIAL DIAGNOSIS

Dr. Edward D. Churchill; Before discussing the diagnosis in this case I should like to comment on a few points in the history. I take it that the episode of "cold in the kidneys" was so labeled because the patient passed bloody urine. Later he had some urinary-bladder infection indicated by the great number of white cells in the urinary sediment and probably due to the long period of catheter drainage. The calculi in the urinary bladder I think it is safe to attribute to that infection, rather than to skeletal decalcification from immobilization.

"There was left-upper-quadrant tenderness, without spasm and with no sign of peritoneal irritation." I could add "no sign of pleural irritation" because that too produces spasm in the left upper quadrant.

The old compression fracture of the body of the first lumbar vertebra, the narrowing of the twelfth thoracic intervertebral-disk space and the slight anterior displacement of the body of the first lumbar vertebra all show that the patient had experienced severe external trauma to the spine.

I shall make my diagnosis before looking at the x-ray films. There is only one diagnosis that is consistent with the evidence at hand — evis-

ceration of abdominal organs into the left pleural cavity through a rent in the diaphragm. The diaphragm was ruptured at the time the rocks hit him in the back. I am not going into any long academic dissertation on differential diagnosis. As far as I am concerned, this is the only possibility if the evidence is accepted as stated.

There are two or three interesting points for comment. Why did ten months elapse after the accident before the evisceration occurred, and why did it occur just as he arrived at the Massachusetts General Hospital? I should like to know how he was transported. Did he ride in a train?

Dr. Arthur L. Watkins; In a train and an ambulance.

Dr. Churchill; Quite a distance?

Dr. Watkins; Overnight.

Dr. Churchill; Was he in a roomette, compartment or lower berth?

Dr. Watkins Such patients usually travel in a bedroom or a compartment.

Dr. Churchill; There is quite a difference in the physical forces at play depending on whether one is riding with one's long axis parallel with that of the train or lying transversely. I discovered that when I had my own hernia repaired and traveled in a roomette shortly afterward. I was rolled back and forth all night, and there was considerable strain on the new incision. If this patient was lined up with the long axis of the train, the viscera might have started their migration through the rent in the diaphragm just from the motion of the train. It should be remembered that he had been immobilized by his paraplegia since the accident.

Dr. Watkins; He was in a bedroom with the bed crosswise to the tracks.

Dr. Churchill; Another point of interest is that an evisceration into the pleural space destroys the mechanism of vomiting. It is interesting that the patient managed only once to throw up but he kept on retching and trying to vomit. When the stomach moves into the chest, the antral region becomes obstructed, the stomach fills with swallowed air and fluid and reaches enormous proportions — enough to give the tympany, absent breath sounds and displacement of the heart and mediastinum that were recorded in this patient on the following day. Sometimes, the x-ray film shows little but the stomach blown up like an enormous bal-

loon, with a fluid level. In addition to the stomach, the spleen, omentum, small bowel and large bowel were probably in the chest, but my guess is it was the stomach that was so blown up that it was giving the signs of pneumothorax. One cannot vomit from a stomach that lies upside down in the chest cavity — one retches. To vomit, the diaphragm is set, and the abdominal muscles are contracted. This mechanism does not work when the stomach is in the chest.

In conclusion, I offer only one diagnosis, rupture of the diaphragm, eversion into the pleural space and acute dilatation of the stomach.

Dr. Alfred Kranes; Why did you not consider the possibility of spontaneous hemopneumothorax?

Dr. Churchill; The statements of the record do not suggest it. At the time this pain occurred there was no change whatsoever in the physical findings in the chest. There were no dyspnea, no increase in respirations and no pleural pain from the rupture of an adhesion — nothing on the day of onset to point to a spontaneous pneumothorax. The next day the physical signs were those of a spontaneous pneumothorax.

A Physician; What about a spontaneous rupture of the esophagus?

Dr. Churchill; I thought about that possibility but did not know what to attribute it to. Here was a man who had been well, had not been vomiting and had nothing apparently to suggest an ulcer of the esophagus or ante-mortem digestion of the esophagus. If, in desperation, I had made a second choice, I might have chosen rupture of the esophagus as a blind guess.

CLINICAL DIAGNOSIS

Acute gastric dilatation.

Paraplegia.

Dr. Edward D. Churchill's Diagnosis.

Evisceration of stomach and other abdominal organs through traumatic rent in diaphragm.

Acute dilatation of stomach.

ANATOMICAL DIAGNOSES

Evisceration of stomach and colon through traumatic rent in diaphragm.

Acute dilatation of stomach.

Fracture of eleventh and twelfth thoracic vertebrae with spinal-cord compression.

(Paraplegia.)

Acute and chronic pyelonephritis.

Bladder calculi.

Coarctation of aorta.

PATHOLOGICAL DISCUSSION

Dr. Benjamin Castleman; This photograph of the opened chest shows the collapse of the left lung, which was due, as Dr. Churchill predicted, to a rent in the diaphragm through which had passed the left transverse colon, the splenic flexure, some omentum and this huge reddish ballooned-out stomach lying up against the heart. The stomach was enormous — it held 3 liters of fluid — and was turned up so that the greater curvature was superior just as Dr. Churchill described it; the only parts of the stomach that had not herniated through the rent were the cardiac orifice and the antrum. The rent was located about 3 cm. to the left of the esophageal orifice and extended laterally for 18 cm.; it was 5 cm. wide at its widest point. It was evidently an old rent because the pleural and peritoneal surfaces were fused and well healed, so that the hole must have been present ever since the original accident. There were no adhesions, probably allowing for free herniation or evisceration if one prefers that term. Does herniation mean that omentum has to protrude along with other organs?

Dr. Churchill; With herniation there has to be a sac.

Dr. Castleman; Then the correct term here is evisceration. It was not eventration, a congenital condition in which the rent occurs in a thinned-out diaphragmatic muscle. There was no evidence of peritonitis or pleurisy.

The black coal miner's lung is interesting. We rarely see that condition here. Some time ago Dr. J. Gough, of Cardiff, Wales, presented me with some of his pictures of coal miner's lung, which he sees regularly. This picture, which is that of a thin slice of the actual lung of one of Gough's cases, is similar to that seen in the lung of the patient under discussion; there are islands of carbon with scarring surrounded by foci of emphysema. This is the early stage and one in which there is usually no evidence of right-sided cardiac embarrassment; his lung picture was just about at the stage at which failure of the right side of the heart begins. It is in the more-advanced cases in which the lesions become fused and much larger that tuberculosis may develop.

The kidneys were markedly infected because

of the paraplegia; the infection, I am sure, was the cause of the stones in the bladder, which in turn caused the hematuria.

Dr. Watkins; We should have had Dr. Churchill see the patient the afternoon before he died. Should we have suspected that condition when he had the pain and retching without being able to bring up anything? Is that characteristic enough to make you think of evisceration?

Dr. Churchill; The evidence of severe external trauma and the frequent association of a rupture of the diaphragm with a severe fracture of the spine from direct force is very suggestive.

Dr. Castleman; There is one more interesting finding in this man that we might discuss after we see the x-ray films.

Dr. Stanley M. Wyman; In the original film of the chest and upper abdomen, there is nothing very startling. These films were interpreted as being within normal limits. The films of the thoracic spine and the lumbar spine show the severely damaged first lumbar and twelfth thoracic vertebrae. The bladder stones are well seen in the anteroposterior view. Dr. Laurence L. Robbins made an acute observation on this set of films; he made a diagnosis of coarctation of the aorta based on the narrowing of the aorta at this point. The aortic knob was much smaller than it should have been, and the aorta was constricted at this point. This is seen in the lateral view as a V-shaped indentation in the posterior aspect of the aorta. Another and perhaps more important observation is that in these films taken for the visualization of the thoracic spine, there is a projection, slightly above the level of the left leaf of the diaphragm, of a loop of colon, which I am sorry to say we did not appreciate originally. This can be seen in the lateral view as well, where the loops of colon are much more clearly visualized than they are under normal circumstances because they are adjacent to air-containing lung. The film taken with a portable machine an hour before death shows, as Dr. Churchill predicted, this enormously distended organ the stomach, containing fluid and air. The fluid level is not seen because the film was taken in the supine position. One can see the compression of the lungs, which now occupy this small space, and displacement of the heart and mediastinum to the right.

Dr. Castleman; Dr. Robbins was shown these films while the autopsy was being done, and one of the house officers rushed over and asked if we had found the coarctation. The prosecutor had already found it. It is interesting that the coarctation was 3 cm. lower than the usual coarctation and was surrounded with a good deal of connective tissue. We toyed with the idea that the injury might have produced a coarctation like that. However, the injury was too high, and microscopical sections gave no evidence of old blood in that region.

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THE *President's* PAGE

AN INVITATION TO ATTEND THE 65th ANNUAL MEETING OF THE ARIZONA MEDICINE ASSOCIATION

THIS MONTH MARKS THE ANNUAL MEETING OF YOUR ASSOCIATION. ALONG WITH THIS MONTH'S ISSUE OF ARIZONA MEDICINE IS A BANG UP PROGRAM PREPARED FOR YOU BY THE SCIENTIFIC ASSEMBLY COMMITTEE HEADED BY DR. PODOLSKY. I WISH TO CORDIALLY EXTEND THE WARMEST OF INVITATIONS AND TO URGE YOU ALL TO MAKE THIS A MUST FOR THE LATTER PART OF APRIL.

I ALSO WISH TO EXPRESS MY GREATEST APPRECIATION FOR THE SPLENDID WORK DONE BY ALL OF YOU IN RUNNING THE AFFAIRS OF THE ASSOCIATION. YOUR ASSOCIATION AND I HAVE RECEIVED THE HIGHEST TITER OF COOPERATION AND ENTHUSIASM BY ALL DOCTORS THAT HAVE PARTICIPATED IN JOBS BIG OR SMALL. I USE THIS FINAL PARAGRAPH TO SALUTE THEM WHO REALLY ARE THE PEOPLE THAT MAKE YOUR ASSOCIATION GREAT.

HARRY E. THOMPSON, M.D.
PRESIDENT, ARIZONA
MEDICAL ASSOCIATION

Editorial

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION, INC.

VOL. 13

APRIL, 1956

NO. 4

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
 2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
 3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
 4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
 5. Submit manuscript typewritten and double-spaced.
 6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.
- The Editor is always ready, willing, and happy to help in any way possible.

EDITORIAL

"LIKE YOUR DOCTOR?"

IN the February 13th issue of NEWSWEEK there appeared a survey in the Medical Section under the title "Like Your Doctor?". This same data appeared in the evening papers of Tucson and Phoenix. The manner of presentation of the findings of this survey conducted by Ben Gaffin and Associates, Inc. was surprising and disturbing. It would seem that the case of the doctor is being poorly presented to the public. There is a display of the small percentage of medics, the problem children and black sheep and their antics with no emphasis upon the great majority of doctors who are doing a satisfactory to excellent job at a very reasonable fee.

To quote, "six percent are not dedicated to serving mankind as he should be." To express the same thought in the following way would present a much better picture — that 94% of the doctors are dedicated to serving mankind.

Five percent "he is too quick to recommend operation," rather than the more pleasant findings that 95% do not recommend operation too quickly or needlessly.

Fifteen percent "keep patients waiting longer than necessary" rather than 85% keep their appointments as well as circumstances will permit.

Sixteen percent "he charges too much" rather than 84% of the patients found the charges made were reasonable.

Problems do exist. There are misdeeds and at times a poor philosophy of medicine. We cannot ignore these undesirable features of medical practice. It is preferable however that by strong actions within the medical organization these errors be corrected. It is not desirable to display before the public the shortcomings of a small and limited segment of our profession when these deviations do not reflect the practice and philosophy of the majority of those practicing medicine.

This thought would be helped by the elimination of petty comments to patients about other practitioners. It would be helped by a lessening of the strife perpetuated by the Specialists vs. GP and GP vs. Specialist, a strife that is more apparent than real.

It cannot be "all sweetness and light" but to accentuate the negative and not present the positive is a serious error.

—O—

LETTERS TO THE EDITOR

The opinions expressed here are those of the writers, and do not necessarily reflect those of the editors or of Arizona Medicine.—ED.

F. A. Shannon, M.D.

166 North Frontier Street

Wickenburg, Arizona

October 2, 1955

R. Lee Foster, M.D.,

Editor, Arizona Medicine

Heard Building

112 North Central Avenue

Phoenix, Arizona

Dear Dr. Foster:

IN a recent article¹ Professor Herbert L. Stahnke concluded that meperidine (Demerol(R)) should not be administered to a mammal envenomized by the scorpion *Centruroides sculpturatus* because of a synergistic action between the toxin and the meperidine. Professor Stahnke states that the investigation upon which the article is based was undertaken because several children who had died in recent years "from apparent scorpion envenomization had received Demerol(R) as a therapeutic agent." He observed "that some of these children had not reacted in a manner typical of a child who has received a lethal dose of this venom." He apparently presumes that these children were thus assisted if not pushed into the hereafter by means of meperidine. Such a presumption is a classical example of reasoning *post hoc ergo propter hoc*. In addition Professor Stahnke does not state in what way the children had reacted to make him suspicious that the scorpion was not the cause of death, and, in view of a further statement that a lethal dose of meperidine produced symptoms similar to those of *C. sculpturatus* poisoning, it is unfortunate that he did not elaborate.

Professor Stahnke's experimental methods were grossly biased, as will subsequently be pointed out, and his conclusions that meperidine acts synergistically with scorpion venom to produce increased morbidity or death may thus be rejected.

Three groups of rats were given respectively 0.18 mgm., 0.15 mgm., 0.10 mgm., per 100 grams of body weight of *C. sculpturatus* venom. These same rats were given respectively 20, 15, 5, 2, and 1 mgm. of meperidine. Controls were given 40, 30, 25, 20, 15 and 19 mgm. of meperidine per 100 grams of body weight. It was established that an LD₅₀ of *C. sculpturatus* venom was 0.15 mgm. per 100 gm. body weight of albino rats on the basis of 10 rats. The average time for the five deaths was approximately 80 minutes. An approximate MLD for meperidine was established at 25 mgm. per 100 gm. rat body weight on the basis of an unstated number of rats. The lethal time ranged from 37 to 91 minutes. All of an unstated number of rats given 20 mgm. per 100 gm. body weight, or less, recovered. A tabulation as to how the rats reacted to both meperidine and venom is included. The albino rat

was chosen for the experimentation because the reaction of the animal to "*C. sculpturatus* venom parallels that of the child very closely." It is unfortunate that Prof. Stahnke did not note that the rat does not respond to meperidine as does the human. If a 70 kilogram man (154 lbs.) were given meperidine in the form of 50 mgm./ml. Demerol (R), at the ratio of 20 mgm. per 100 gr. (tolerated by all the rat controls), he would receive a total of 14,000 mgm. or 280 ml. of Demerol (R). Most physicians would concur that a superimposed scorpion sting would be superfluous. Even the minimum meperidine dosage used by Stahnke (0.5 mgm. per 100 gm. rat, which incidentally, was not lethal) would correspond to 350 mgm. in the 70 kg. man, a dosage much higher than would be therapeutically tolerated in anyone but an addict.

Professor Stahnke's data thus breaks down to the fact that rats given lethal or almost lethal injections of scorpion venom will die if given sublethal dosages of meperidine. Prof. Stahnke first observes from his table that the lethal-time in the 0.18 mgm. group of rats is shorter for those rats receiving from 5 to 20 mgm. of meperidine than for those receiving no meperidine. It is hoped that intellectual obfuscation was behind the juggling of data necessary to arrive at this conclusion. Two of the rats, one receiving 1.0 mgm./100 gm. and the other 0.5 mgm./100 gm. of meperidine lived much longer than the two rats receiving no meperidine. If these had been included with the other animals receiving meperidine, the average lethal time for the rats would have been 47.6 minutes compared with 41 minutes for the two receiving no meperidine. This does not mean that overwhelming dosages of meperidine should be used in the treatment of scorpion sting, but it does point out the uselessness of compiling such scant data that the results cannot be safely subjected to statistical P values even with the use of a conversion factor.

Observation number two was that the eight rats receiving the LD₅₀ (0.15 mgm.) injection of scorpion venom all died when subjected to overdosage of meperidine, whereas the observer felt that only four should have died. Perhaps it is facetious to point out that one of these rats receiving 1.0 mgm./100 gm. of meperidine lived 27 minutes while another receiving 20 mgm/100 gr. lived 31 minutes since the combined average for these overdosed rats was indeed only 32

minutes compared to 80 minutes for the rats killed by the venom alone.

Observation number three was that in the 0.10 mgm. group of rats only one recovered, "whereas all should have recovered." Professor Stahnke does not say why he thought all the rats receiving a venom injection two-thirds that of the LD₅₀ should recover, but it may be presumed that all of his controls had. (He lists only one control.) The rats that died received 2.0, 5.0, 10.0, 15.0, and 20.0 mgm./100 gm. body weight.

Conclusion. It is true that "overdosage with meperidine results in evidence of cerebral excitement, including tremors, muscular incoordination and even convulsions."² Nevertheless, condemnation of a useful drug used in reasonable dosage cannot be achieved through experimentation involving statistically insignificant numbers of gravely envenomed rats grossly overdosed with the experimental medication.³

F. A. Simmons, M.D.

1. "Demerol® as an anti-scorpion therapeutic agent," Arizona Medicine, vol. 11, No. 2, pp. 51-52.

2. Goodman and Gilman, The pharmacological basis of therapeutics, The Macmillan Company, New York, p. 265, 1955.

3. In a recently privately printed (?) publication, Stahnke also condemns the use of morphine for scorpion stings, his conclusions in this case apparently being based upon no experimentation.

January 9, 1956

Frederick A. Shannon, M.D.
Wickenburg, Arizona

Dear Fred:

Through the professional courtesy of Arizona Medicine I was provided with a copy of your letter to the Editor regarding my report of our pilot test on the relationship of Demerol® and *Centruroides sculpturatus* evenomization. You seem to be developing a habit of destructive criticism regarding the efforts of others. This is regrettable because it merely clutters an already overburdened literature and reacts unfavorably to you personally. In 1935 I wrote a paper in which I too made a personal reference regarding an error made by a very fine American scientist. My paper was based on an original contribution and although my data have stood the test of time in proving my original statement entirely correct, yet as the years went by I realized that the sum total of my contribution would have been much greater had I omitted the personal reference. Any personal satisfaction that I may have gained was erased by the realization that I lost a potential friend. One simply does not ascend to the heights of respect and success by stepping on the should-

ers of his fellow man. A much greater scientific advance can be made through person to person contacts, friendly, open, sincere discussions rather than by the immature tactics of "hanging dirty linen on the public washline."

It may interest you to know that since making our brief report regarding Demerol® we have had three cases involving Demerol® and scorpion sting brought to our attention. One was a 2 year old male child given 6 cc. of Demerol®, another case, a 25 year old white female received 100 mg. of Demerol®, and a third was a male 42 years of age given 50 mg. of Demerol®. These three cases were also given scorpion antivenom produced by PARL but their reactions were exceedingly atypical when compared with several hundred others whose case histories are in our files. These reports, we felt, indicated a need for a more extensive investigation of this apparent synergistic reaction of Demerol®. Fortunately, we were able to secure the funds to do this. The results have confirmed our previous findings. An article covering this investigation will be published soon and we hope that it will prove of value to the medical profession.

Fred, you are too intelligent an individual not to realize that your own flanks are very badly exposed. As a personal check I suggest that you review the accepted scientific attitudes, the scientific method, and professional ethics seasoned with a little common neighborliness. Now, thoughtfully re-read your letter to the Editor of Arizona Medicine. Follow this with a careful reading of my report on Demerol®. After this use your *own letter*, plus the other qualities I mentioned, as a measuring device and review some of your writings. I would suggest your "Letter to the Editor of the Arizona Republic on May 13, 1953", or especially your "Report on a Fatality due to Rattlesnake Bite". Certainly by this time you should have a new insight on your "Comments on Treatment of Reptile Poisoning in the Southwest". Be sure to include the three so-called "Methods of Shannon" in Current Therapy. We will stop there although your other writings, even the actual contributions to the field of medicine and herpetology, are not above criticism . . . even by your own measuring stick. No, Fred, you are not without fault but I have no desire to be malicious. However, I do stand ready to be helpful at any time. None of us are perfect, but

I feel that where one sincerely tries to make an original contribution to the sum total of knowledge that the mistakes he is bound to make are far outweighed by the truths revealed.

I bear you no ill will, Fred. If you can make original contributions in any field while still following the busy routine of a physician, you are to be congratulated. We extend our fifth invitation to you to make your initial visit to PARL. We would indeed be pleased if you would accept it. In fact, Mrs. Stahnke and I would enjoy having you and Mrs. Shannon for dinner some time. This would provide an excellent opportunity for discussing the work, plans, and aspirations of the Poisonous Animals Research Laboratory and becoming better acquainted since we have so many interests in common.

Very cordially yours,
Herbert L. Stahnke, Ph.D.
Director

HLS:ct

P.S. A copy of this letter has been sent to the Editor of Arizona Medicine. If you still insist on the publication of your letter, I will be content to let this be published as my response.

H.L.S.

P.S.S. I have just received a set of 17 Kodachrome slides covering the history through plastic surgery of two rattlesnake bites occurring in Texas. Would like to have you see them.

H.L.S.

January 10, 1956

(Surrejoinder to Prof. Stahnke's reply.)

Dr. R. Lee Foster
Editor, *Arizona Medicine*
Heard Building
112 North Central Avenue
Phoenix, Arizona
Dear Dr. Foster:

Professor Stahnke does not answer my criticisms. However just his evaluation of my personality may be, he does not challenge my statement that a condemnation of meperidine could not be based upon his data.

An interesting sideline was his mention of a two-year-old child receiving 6 cc. of meperidine for scorpion sting. I would tend to be astonished that no more damage was observed than an "exceedingly atypical" reaction, whatever that may mean. This certainly does nothing to en-

hance Prof. Stahnke's case, as 300 mgm. of meperidine could easily have proved to be quite toxic. It is, of course, considerably less than 2800 mgm. which a 30-pound child would receive if he had been given a dosage comparable to the largest received by Prof. Stahnke's mice.

Very truly yours,
Frederick A. Shannon, M.D.

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The American Goiter Association Hospital

We would appreciate it if you would announce the 1956 meeting of the American Goiter Association will be held in the Drake Hotel, Chicago, Illinois, May 3, 4 and 5, 1956.

The program for the three day meeting will consist of papers and discussions dealing with the physiology and disease of the thyroid gland.



TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By Guillermo Osler, M. D.

INFECTIONOUS MONONUCLEROSIS can become known as the 'Kissing Disease', with mistletoe as its symbol. Hoagland, in the Amer. Journ. Med. Sciences, believes that kissing is the means of transmission, and that its intimacy (and saliva) are what preserve the organisms. Ordinary contact has never been enough, and the reason has been obscure. . . . His cases (in the U. S. Military Academy) are so well-observed and their lives so regular that he has been able to suggest that the incubation period is 33 days or so, as compared to the previous vague belief that it was 1 or 2 weeks. . . . The age of 17 to 26 years, chiefly in unmarried persons, is both a limitation and a commentary.

News about new drugs is received by the skeptical with reservations, but also with some hope if the source is substantial. . . . It would be likely that Dr. E. Gifford Upjohn, of the firm by that name, must have some basis for saying to a medical meeting, — "Recent developments (in the search for a drug taken **BY MOUTH TO CONTROL DIABETES**) now suggest a breakthrough may have occurred."

Cutler of Sacramento says that **PARENTS AND DOCTORS** have an obligation to supply children with an "EMOTIONAL DIET" which leads to maturity. The proteins, etc., of such a diet are, — 1. the need for security; 2. the need to achieve social adaptability; 3. the need for success; and 4, the need for independence. . . . I wish we had 124 hours a day and 3,000 days per year.

A dental colleague from Phoenix has crashed **'TIME'** Magazine. Dr. Ernest M. Pafford is reported to have successfully started a "**TOOTH BANK**". . . . Teeth are extracted, tagged for blood type and Rh factor, then preserved in deep-freeze. The storage is said to be "indefinite." . . . Transplanting is done by producing a blood clot in the socket, placing the tooth in situ, and waiting for it to 'take'. The pain leaves in 18 hours or so. It never aches thereafter since, tho it has a blood supply, it has no nerves. It can be used for chewing in about 2 weeks.

The '**SKIN BANK**' at Barnes Hospital, St. Louis, was the first in the world. Dr. J. B. Brown, its director and chief of plastic surgery, urges the more extensive use of **POSTMORTEM HOMO-GRAFTS**. He believes that the methods of preservation are so standard that such a bank should be a standard surgical resource. . . . The Barnes

series is only 30 cases, but some were so 'fatally' burned (70% of the body) that all but 6% were saved. . . . Skin remains viable for some time (hours to days) after systemic death. With correct refrigeration it may be saved. . . . Skin homografts act as 'biologic dressings'. They prevent loss of fluids, control anemia and infection better than any other method. . . . Skin is stored in rolls, wrapped in gauze, moistened with a saline-antibiotic mixture, in jars at three to 5 degrees C. It remains viable for 21 days.

For every person whose thyroid needs a **RADIATION-DETECTED FUNCTION TEST** there are hundreds whose **LIVER** need checking. . . . The news that a method has been successfully used by the UCLA Atomic Energy Project and the LA VA Administration Center is encouraging. They have employed a radio-iodine-tagged rose bengal which is taken up by the liver, and a scintillation counter. The uptake and excretion of the dye can be measured by placing the counter over the liver. Normals take up dye for 20 to 30 minutes and clear it more slowly in the next 2 hours. . . . Liver diseases or poor circulation results in a slow uptake. Slow clearance suggests stones in the ducts. . . . The test supposedly measures several functions, and more directly than most tests.

Some Copenhagen dermatologists have found that **LOCAL INJECTIONS OF KELOIDS** by a 25 mg. per ml. solution of **HYDROCORTISONE** acetate produced partial or complete improvement in 56 cases. The duration had been 6 weeks to 8 years. . . . Injections were at 8 to 20 day intervals, for total doses ranging from 35 to 725 mg.

A very few cases of another more common lesion have responded to topical application of **HYDROCORTISONE** ointment in New Jersey. . . . **HERPES ZOSTER** cleared promptly, with loss of both pain and skin lesions. . . . We'll try it at once, even at \$1.60 per one-sixth ounce, hospital price.

It seems worth while to read again the 'Jones Criteria' for **GUIDANCE IN THE DIAGNOSIS OF RHEUMATIC FEVER**, as modified by the American Heart Association. Their president, Dr. Page the hypertension man, has cooperated with the National Heart Institute of the P.H.S., as well as the A.M.A. and other groups. . . . The Criteria are Major and Minor, plus a few other manifestations. The Major, — carditis, polyarthritis, chorea,

subcutaneous nodules, and erythema marginatum. The Minor, — fever, arthralgia, prolonged P-R interval in the ECG, increased sed. rate, W.B.C., or the presence of C-reactive protein, a history of beta hemolytic strep infection, and previous rheumatic fever or inactive heart disease. . . . Each of these is defined and qualified.

The American Heart Association also lists the CURRENT METHODS OF PREVENTION AND TREATMENT. . . . 1. Diagnosis and drug treatment of streptococcus infections in the general population usually prevent rheumatic fever. . . . 2. All individuals with whom known chorea or rheumatic fever should be started and continued indefinitely on chemoprophylaxis. . . . 3. People with such a history should have larger doses of drugs to prevent bacterial endocarditis after dental extractions, various operations, etc. (600,000 U. aqueous and 600,000 U. procaine penicillin in oil containing aluminum monostearate I.M. just before operation). . . . The doses for use against strep infection are as follows, — IM=Benzathine penicillin G, children 600,000 U., one injection, adults 600,000 to 900,000; or procaine penicillin with aluminum monostearate in oil, children 300,000 U. every 3rd day for three doses, adults 600,000 U., same routine. Oral=children and adults 250,000 U. TID for 10 days. . . . Broad spectrum antibiotics should only be used if person is sensitive to penicillin. Sensitivity should be asked about, watched for. Troupes or lozenges should NOT be used. . . . Prevention of strep infection in rheumatic individuals requires oral sulfadiazine ($\frac{1}{2}$ to 1 gm. each A.M., daily), or penicillin (200,000 to 250,000 U. every day before breakfast), or a hypo of Benzathine penicillin G, 1,200,000 U. once a month. . . . This list is good to know, and has a few surprises.

The MEDICAL SCHOOLS are, relatively, in clover. They have their usual sources of funds (never enough). They have an income from the A.M.A. gift fund (only modestly more). Ten of theirs have \$300,000 to 1 million \$s apiece from the Commonwealth Fund. Then all (repeat, all) have the big fat wonderful grants from the Ford Foundation.

Levine of Boston, father of the 'CHAIR' TREATMENT OF ACUTE MYOCARDIAL INFARCTION, feels strongly that it keeps the patients in good condition, and is well tolerated, and that it is LESS work than keeping the patient in bed. Mortality is lower in the chair patients. . . . The patient is not to be lifted into a chair, but guided out of bed into the chair. . . . This is along the line of proof that a patient can use a commode with less exertion and use of oxygen than a bedpan.

The CARE OF CHILDREN makes good newspaper stories. It's fashionable for women fund

raisers, too. That's all to the good, since kids need care. . . . The most recent regional news has been the 'home from home' for ASTHMATIC CHILDREN in Denver. They take in severe asthmatics from all over the U. S. and rehabilitate them for two years. The care is free and non-sectarian. They provide encouragement and education and clear air, but also what they call "parentectomy". Parents can aggravate or 'fix' an asthmatic status. . . . It's a good deal and it just happens that, from the publicity standpoint, one of the largest news syndicates contributes heavily to the Jewish National Home.

The City of Hope, near Los Angeles at Duarte, is another "NOBODY HAS EVER PAID A CENT HERE" hospital. They specialize in cancer, leukemia, TB, and heart disease. . . . 'CORONET' magazine has just had a spread on this 'Happy Hospital'. Most of the money comes from groups thruout the U. S., but considerably from union and movie money.

"The substitution of oral
Neohydrin
for parenteral meralluride
was successfully
accomplished in 97 per cent
of 70 ambulatory
clinic out-patients with
chronic congestive
heart failure."*

Lawrence, W. E., Kahn, S. S., and Riser, A. B.
South. M. J. 47:105, 1954.

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MEDICAL DIRECTOR
DUKE R. GASKINS, M. D.

Dear Doctor:

I am looking forward to the State Medical Convention to be held at the San Marcos Hotel in Chandler April 25 through April 28.

To be on hand during the meeting I have taken Cottage Number 30-A and B. If you have an opportunity, drop around for refreshments and a chat.

If you have any suggestions or questions about HBA and their services, I will be very pleased to talk with you at that time.

Very truly yours,

HOSPITAL BENEFIT ASSURANCE

Duke R. Gaskins, M. D.
Medical Director

DRG:bw.

Organization PAGE

CIVICS

Norman A. Ross, M. D.

THE AMERICAN NATIONAL RED CROSS, MARICOPA COUNTY CHAPTER, H. W. Dixon, Chapter Chairman, 329 North 3rd Avenue, Phoenix, Arizona.

"Identification Cards" have just been obtained in quantity.

Samples of these cards are yours for the asking and a supply of same when you wish. The Chairman advises that they are inviting criticism or suggestions from the medical profession as to the contents of future printings of the "Identification Card".

AMERICAN CANCER SOCIETY, INC., ARIZONA DIVISION, 1429 North 1st Street, Phoenix, Arizona, James R. Bunker, Executive Director.

The Arizona Division of the American Cancer Society has as a result of a survey conducted by the national office made plans to considerably increase its program and activities throughout the state. Note: An Executive Director is appointed and the April campaign goal is \$97,000.

The campaign slogan will be "Fight Cancer With A Check Up And a Check." Doctors should be aware of this added emphasis to the general public, to have a regular "Check Up". The slogan will be widely used on radio, TV, Billboards, newspapers, etc. in April.

State Headquarters will remain at 1429 North 1st Street, Phoenix, Arizona. There will be an Executive Secretary and Field Representative for the Southern counties. This office will be at 201 North Stone Avenue, Tucson, Arizona.

BOYS' CLUBS OF PHOENIX, Charles M. Hall, Executive Director, 1652 East Moreland, Phoenix, Arizona.

The Boys' Clubs of Phoenix 1955 Annual Report has been Published and is available to those physicians who are interested in establishing Boys' Clubs in their towns or communities.

COORDINATING COMMITTEE ON SCHOOL HEALTH of the

ARIZONA STATE DEPT. OF HEALTH
STATE DEPT. OF PUBLIC INSTRUCTION
Capitol Building, Phoenix, Arizona

The Handbook on School Health, a Manual of Instruction for Arizona School Personnel is being rewritten by this Coordinating Committee with one section applicable to Health Programs in the grades and another to the high schools. Copies of this manual are available to physicians through the State Department of Public Instruction. Physicians may now order the revised manual for later delivery from either agency.

COCCIDIOIDOMYCOSIS:

Michael L. Furcolow, M.D., Medical Director and Chief of the Kansas City Field Station of the U. S. Public Health Service, University of Medicine, Kansas City, Kansas, who have been involved in a Histoplasmosis study in the Mississippi and Missouri valleys, attending a meeting of Public Health, Army, chest physicians, and a number of veterinarians at the State Board of Health Laboratory.

Top level conferences in the Fall and then a Public Health study of our problem is possible. Maybe our State Laboratory will do serology tests for coccidioidomycosis.

TRUDEAU SCHOOL OF TUBERCULOSIS

The Trudeau School of Tuberculosis will present its Forty-first Annual Session, beginning Monday, June 4 and concluding Friday, June 29. The course will cover all aspects of pulmonary tuberculosis and also certain phases of other chronic chest diseases including those of occupational origin.

The schedule for the 1956 course is in preparation and a copy will be sent to you as soon as available.

Inasmuch as registration is limited and reservations have already been requested for the 1956 session, it is suggested that those who plan to attend make early application for enrollment.

The tuition fee is \$100 payable to the Trudeau School on or before the opening date, June 4, 1956. A few scholarships are available for those individuals who can qualify. The Tru-

deau School of Tuberculosis has been approved for training of Veterans under Public Laws and those desiring to obtain Veteran's benefits should clear their registration with the Veterans Administration before the session begins.

Communications should be addressed to:

Secretary, Trudeau School
7 Church Street
Saranac Lake, New York

THE GOVERNOR'S ARIZONA MENTAL HEALTH RESEARCH COMMITTEE, 620 Professional Building, Phoenix, Arizona.

The Western Interstate Commission for High-

er Education Mental Health Training and Research Survey Project Office, Dr. C. H. Hardin Branch, Project Director, advises that its meeting for presentation of the final report and recommendations of the State Committees will be held on the week-end of June 1, 2, and 3, 1956.

It is anticipated that WICHE (Western Interstate Commission for Higher Education) will present a final report at the end of this meeting or soon afterward. The Governor's Committee will furnish WICHE's recommendations on request. Please write us for your copy well in advance of this date so that we may order this report in sufficient amount.

28 Year Old Physician, with family, wishes to locate in Phoenix or Tucson. Graduate of Class A Medical School; have accredited internship and 1 year general practice residency; Category IV; can reciprocate with Arizona boards; available about July 15. Wish to associate with another GP.

CONTACT:

CARL D. PARISH, M.D.

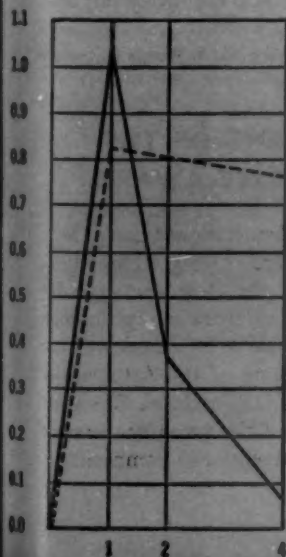
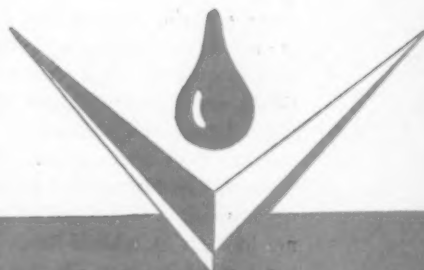
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ALLIED MEDICAL SERVICE RECRUITMENT IN MARICOPA COUNTY

THE recruitment of personnel in allied medical fields is a project which has been assumed by the Maricopa County Medical Auxiliary this year. This program is endorsed by the National Auxiliary and many counties throughout the country are adopting it. Our adoption of this project will directly further one of the aims of the auxiliary, namely: "To extend the aims of the medical profession to all organizations which look to the advancement of health and health education."

Allied services are the fields closely associated with the practice of medicine. Specifically, this year, we shall include: professional nursing, practical nursing, medical technology, x-ray technique, dietetics, physical therapy, occupational therapy, medical records and medical social work.

In the past years the Auxiliary has assisted mainly in the nursing recruitment program. It is, however, becoming increasingly apparent that in order to care efficiently for all of a patient's needs, our husbands require the assistance of well trained personnel in all medical departments. It is also obvious that the harmonious interrelationship of the allied services depends upon a full complement of well trained personnel in each individual field. Therefore, we can see a need existing, on the part of the patient, the doctor, and in the workings of the medical care groups as a whole. We shall try to satisfy this need.

By the first week of October, a letter to all High School Principals, Counselors, and School Nurses were sent by this Committee. The letter states that a panel of speakers has been organized by the Recruitment Committee of the Auxiliary. This panel will consist of one member of each allied medical service group, who has been trained in an AMA approved training program. These speakers will each be prepared to give a ten to fifteen minute talk, which will include: prerequisites for entrance into their specific field; subject matter that the training will cover; nearby locations where the training

may be obtained and their specific duties after their training is completed. We would like to send this panel out as a group, rather than as individuals. Thus we would need approximately two hours for them to complete their program. They could divide the panel in half, thereby giving two, one hour periods, but not less.

One of the panel will be selected as Moderator to introduce the others, keep time, and refer written questions by students to the proper member of the panel. The letter outlining the above plan will be followed by a phone call, asking for the specific date and time that the school wants the panel to appear. This program will be spread over the entire year, according to the desires of the school authorities and not centered around a specified month.

With the assistance of our speakers' bureau, an information booklet is to be made up. This will include a page for each allied field. The information on each page is as follows: list of requirements for entrance into the training course; type of program entailed, e.g., hospital, college or both; subject matter covered during training; nearby training locations. This booklet shall be made available to Counselors and interested individuals.

Allied medical services lose many potential workers each year because high school students have not been made aware that their particular scientific interest exists as a profession. We hope that we may be able to recoup some of these losses by our recruitment program this year.

(Mrs. C. W.) Mary Anne Johnson
Chairman.

ANNOUNCEMENT OF THE VAN METER PRIZE AWARD

THE American Goiter Association again offers the Van Meter Prize Award of \$300.00 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the Association which will be held at the Drake Hotel, Chicago, Illinois, May 3, 4 and 5, 1956, providing essays of sufficient merit are presented in competition.

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**AUTHORITATIVE EXCERPTS FROM
LEADING MEDICAL JOURNALS**

Syringe Transmission of Infectious
Hepatitis-Cases increases from 94 to 708.

"ARIZONA STATE DEPT. OF HEALTH, 1954"

* * *

Syringes, needles and any other instruments used for the penetration of the skin should be sterilized individually, preferably by heat. . . Sterilization in an oven or preferably by autoclaving must be done between every use of these instruments. . . From Jour. Amr. Med. Assn. Vol. 145, Jan.-Apr., 1951.

Complete bacteriological sterility can be achieved only by sterilization in the autoclave or hot air oven. From Brit. Med. Research Council, War Memorandum No. 15.

The respective resistances to heat of the viruses of serum hepatitis and of poliomyelitis are not too dissimilar. From Pediatrics Vol. 7, February, 1951.

The safest method of sterilizing syringes and needles used for injections is either dry-sterilizing in the hot air oven for two hours at 160°C. (320°F.) or autoclaving at a temperature of 120°C. (15 to 20 lb. pressure) for 20 minutes. **BOILING IN WATER CANNOT BE RELIED ON TO DESTROY SPORES.** The hot oil method is not recommended. From Brit. Dental Journ. Vol. 92, April, 1952.

The significance of adequate sterilization is obvious. This can be accomplished **only by dry heat sterilization or autoclaving.** From New Eng. Jour. Med., July, 1948.

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Open Letter To The Nation's Doctors From S. Sloan Colt Re Medical Education Week

SINCE its founding in 1949, the National Fund for Medical Education has concentrated almost wholly on obtaining corporation support for the nation's medical schools. Progress has been slow but steady. Each year has seen an increase over the previous one, both in the number and amounts of company contributions. In 1955 more than 1,500 business firms contributed nearly \$1,700,000.

It is, of course, a long way from the \$10 million additional annual income required by the schools. But it has shown us what is necessary to win corporation support: a painstaking — and persistent — campaign of education to show business leaders their stake in medical education.

The encouraging part of the picture is the readiness of business leaders to support medical education "once they know the facts." As Colby M. Chester, chairman of the Fund's Committee of American Industry, once said: "If we can get them to sit still long enough to listen, we can get their support."

That is the problem. And it brings to mind the happy thought that nowhere is a businessman more approachable, or more likely to "sit still," than in a discussion with his doctor.

Now I am not suggesting that physicians badger their patients for contributions to the Fund. But I am wondering if doctors cannot be a great ally of the Fund in bringing, in some way, the needs of the medical schools to the attention of the businessmen among their acquaintances. Certainly no one is better qualified to speak authoritatively than doctors. And no one could be more convincing.

Medical Education Week, it seems to me, provides an excellent occasion for beginning such an approach. It will be a period when the needs of the medical schools, as well as the achievements of medical science, will be discussed at meetings businessmen attend and in publications they read. Perhaps then, too, the approach can be followed up from time to time during the year.

Considering the role that the medical sciences

have played in safe-guarding the people's health, no one has to be timid or reluctant about broaching the subject of continued support for medical education. The testimony of the doctor, coming on the heels of appeals by industry leaders, can do much, in my opinion, to win the businessmen over. Once they are convinced, they are likely to become regular annual contributors to the Fund.

A LIGHTER TAX BURDEN FOR THE YOUNG

ON JULY 18 the House of representatives by a vote of 372 to 31 sent to the Senate H.R. 7225 amending the Social Security Act. The Senate did not act on this bill prior to adjournment on August 2. If enacted, the bill would, among other changes, force a number of self-employed groups now excluded — lawyers, dentists, osteopaths, veterinarians, chiropractors, neuropaths, and optometrists, but not physicians — under Old-Age and Survivors Insurance. Probably 30,000 physicians will attain age 72 during the next 15 years. Age 72 is mentioned instead of age 65, the minimum age at which O.A.S.I. pensions are now payable, because the pensions will be payable at age 72 regardless of earnings; and these pensions will entice few physicians when reaching age 65 to promptly quit taking care of the sick.

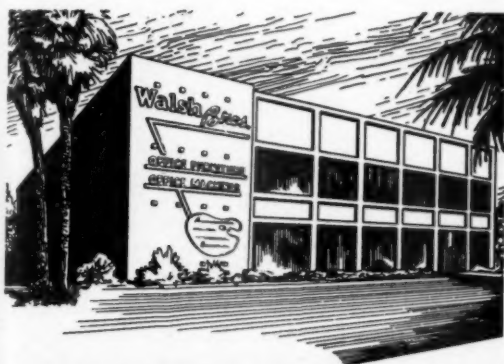
Since these 30,000 physicians would pay on the average less than \$1,000 in taxes during the next 15 years and they (and those now over age 72) would become eligible for pension benefits worth about \$14,000, it follows that their exclusion from compulsory coverage will save the taxpayers of the future an average of at least \$13,000 per physician, or about 400 million dollars. So the decision of the Ways and Means Committee and the House of Representatives to continue to exclude physicians from O.A.S.I. is a boon to the taxpayers of the future. If the Republicans and Democrats during the next 15 years continue to vie with each other in further increasing the windfalls for older workers under O.A.S.I., the boon to the next generation from the continued exclusion of physicians may be much greater than 400 million dollars.



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IN MEMORIAM VIRGIL GUY PRESSON (1896-1955)

Dr. V. G. Presson was born in Doniphan, Missouri, and died last Fall in Tucson.

Following service in our armed forces in England and France in World War I, he began studying Medicine in Glasgow, Scotland, finishing at the University of Oklahoma, class of '23. Before locating in Tucson he studied Tropical Medicine at the International Health Board of Rockefeller Foundation, getting his New York State License in 1923. He then practiced in Santa Ana, California, where he was County Health Officer of Orange County. In 1928 he removed to Tucson, where he practiced as a specialist in Gastroenterology until his death. He joined Pima County Medical Society and Arizona State Medical Association in 1929.

Among a number of important offices held by Dr. Presson are the following:

Past-President, Pima County Medical Society.

Past-Vice President, Arizona Medical Association.

Chief Medical Examiner, Pima Co. Draft Board, World War II.

President and Chief of Staff, St. Mary's

Hospital, 1940.

President and Chief of Staff, Pima County Hospital, 1944.

He was a Fellow of the American College of Physicians, a Scottish Rite Mason, and active as a member of the First Christian Church.

A fellow physician who has been associated with Dr. Presson for more than 20 years recently remarked: "Dr. Presson was good in his profession, yes — but if one quality especially marked the man, it was a deep personal interest he took in each patient, an interest so genuine that it was truly reciprocated by his patients, almost to the point of adoration. It was the rule rather than the exception for them to come not only with their physical complaints but with personal problems, knowing the sympathetic understanding they would receive." This, it seems to us, is as fine a eulogy as could be conceived for any physician.

Survivors are his wife, Lillie, and sister, Mrs. Frank Sancet, both of Tucson.

Hal. W. Rice, M. D.

Book REVIEWS

"PRESENT DAY PSYCHOLOGY", edited by, A. A. Roback, Ph.D. Published by Philosophical Library, New York.

WITH THE ever-growing and spreading of books and papers on psychology, any aspiring writer should hesitate to add to the babel of facts and fancies, formulations and theories on the subject. This volume is justified because its main purpose has been to digest and condense the most pertinent findings and advances in the field — especially those of the past 20 years.

This project, a task too vast for adequate coverage by a single author, has been effectively achieved by the editor's no doubt painfully and laboriously eliciting, from authorities in the myriad respective facets of the field, a total of 40 monographs. It is to the editor's credit that virtually each conforms to a basic outline or purpose — thus attaining a coherence and co-

hesiveness, as well as encyclopedic brevity and comprehensiveness, which is too often lacking in symposia.

Each subject is briefly (20 to 40 pages) and concisely covered by a well-qualified contributor. Usually the theses outline the history and development of the subject, then give in chronological sequence or in the order of their growing importance, the pertinent research findings and theories — and finally sum up and evaluate the conclusions and status of the subject — as conceptualized today.

The majority of contributors are Ph. D.'s, but the medical profession is also well represented by such names as Rudolf Dreikurs, J. L. Moreno, and others. Over 1800 footnotes and references are given by the 40 contributors.

The book is divided into five parts. Under "Topical Departments" are nine monographs — dealing with such matters as: Recent Findings

(Continued on Page 166)

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(Continued from Page 164)

in General Neurology, The Status of Emotion in Contemporary Psychology, The Character Aspect in Recent Psychology and Psychiatry.

Part II is devoted to "Branches." These include: Child Psychology, Educational Psychology, Psychometry, Social Psychology and others.

Part III, "Dynamic and Clinical Psychology," includes papers on Psychoanalysis, Psychosomatics, Psychodrama, Psychodiagnostics, etc.

Part IV, "Methods," contains only two papers — one on Statistics and Probability, the other on Integrational Psychology.

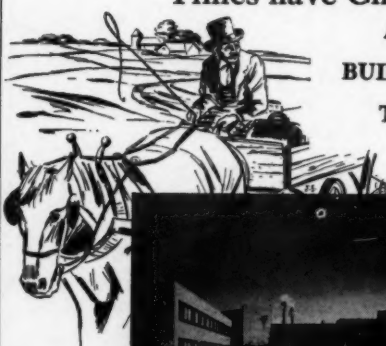

Part V includes six subjects on "Humanistics" — such as Psychology of Art, Psychology of Literature, and Glossodynamics and the Present Status of Psycholinguistics.

This work thus covers not only the main departments and fields of Psychology, but some of its odd and relatively inaccessible corners.

REVIEWED BY:

RICHARD E. H. DUISBERG, M.D.

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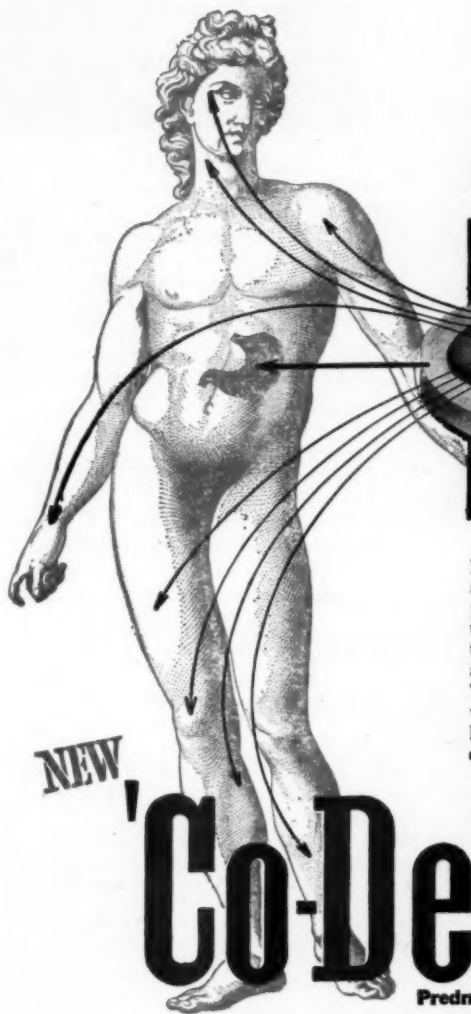
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